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JAMAICA

ANNUAL REPORT

OF THE

MEDICAL DEPARTMENT

FOR THE

YEAR ENDING 31ST DECEMBER, 1932.

Ordered by His Excellency the Governor to be printed.

JAMAICA:
GOVERNMENT PRINTING OFFICE, KINGSTON.
1933.

22501398608

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MEDICAL DEPARTMENT.

Report for the year ended 31st December, 1932.

I.—ADMINISTRATION.

(a) Establishment, including principal appointments, new appointments, transfers, etc.

Medical Staff.

*1	Superintending Medical Officer.
1	Senior Sanitary Medical Officer.
1	Medical Superintendent, Public Hospital, Kingston.
5	Resident Medical Officers, Public Hospital, Kingston.
3	Supernumerary Medical Officers.
1	Dental Surgeon, Public Hospital, Kingston (part-time).
1	Radiologist, Public Hospital, Kingston (part-time).
1	Government Bacteriologist and Pathologist.
1	Medical Superintendent, Lunatic Asylum.
4	Assistant Medical Officers, Lunatic Asylum.
1	Visiting Surgeon, Jubilee Maternity Hospital.
42	District Medical Officers.
2	Port Health Officers.
12	Health Officers (Central Government).
6	Health Officers (Parochial Board Officials).
1	Director, Malaria Commission.
2	Medical Officers, Hookworm Commission.
1	Medical Officer, Yaws Commission.
2	Medical Officers, Tuberculosis Survey and Clinic.
1	Surgeon, St. Catherine District Prison (part-time).

* This post corresponds to Principal Medical Officer in other Colonies.

Nursing Staff.

1	Matron, Public Hospital, Kingston.
1	Assistant Matron, Public Hospital, Kingston.
1	Matron, Jubilee Maternity Hospital, Kingston.
1	Assistant Matron, Jubilee Maternity Hospital, Kingston.
1	Matron, Lunatic Asylum.
1	Assistant Matron, Lunatic Asylum.
1	Matron, Lepers' Home.
19	Matrons in Public General Hospitals.
13	Nursing Sisters, Public Hospital, Kingston.
92	Probationers and Nurses, Public Hospital, Kingston.
3	Nursing Sisters, Jubllee Maternity Hospital.
14	Nurses and Probationers, Jubilee Maternity Hospital.
191	Nurses and Probationers in Public General Hospitals.
87	Female Nurses, Lunatic Asylum.
100	Male Attendants, Lunatic Asylum.
5	District Nurses, Lock-up Dispensaries.

SUBORDINATE MEDICAL AND SANITARY STAFF.

1	Dispenser, Public Hospital, Kingston.
1	Assistant Dispenser, Public Hospital, Kingston.
1	Dispenser, V. D. Clinic, Public Hospital, Kingston.
17	Dispensers in Public General Hospitals.
1	Dispenser, Lunatic Asylum
1	Superintendent and Dispenser, Lepers' Home.
3	Supernumerary Dispensers.
1	Superintendent, Quarantine Station.
4	Laboratory Assistants.
2	Laboratory Washers and Cleaners.
1	Clerical Assistant, Laboratory.
1	Warden, Public Hospital, Kingston.
1	Housekeeper, Nurses' Home, Public Hospital, Kingston.
2	Overseers of Works, Hookworm Commission.
26	Assistants, Hookworm Commission.
1	Technician, Malaria Commission.
7	Sanitary Inspectors, Malaria Commission.
113	Other Sanitary Inspectors (Parochial Board Officials).

In addition to the above, there are cooks, washers, labourers, porters, storemen, watchmen, mechanics, carpenters, etc.

CLERICAL STAFF.

Head Office—

1	Chief Clerk
1	First Class Clerk, and Chief Accountant.
1	Medical Storekeeper (also Secretary, Quarantine Board).
1	Second Class Clerk.
5	Assistants.
2	Assistant Storekeepers.
1	Typist and Stenographer.

Lunatic Asylum—

1	Chief Clerk.
1	Second Class Clerk.
1	Assistant.
1	Typist and Stenographer.

BUREAU OF HEALTH EDUCATION.
(International Health Board of Rockefeller Foundation).

1	Medical Director (representative of the Foundation in Jamaica).
1	Assistant Medical Director.
1	Typist and Stenographer.
1	Assistant Typist and Stenographer.

NEW APPOINTMENTS.

Dr. H. M. Johnston, Medical Officer, Yaws Commission.
Dr. L. E. Arnold, Medical Officer, Hookworm Commission.
Dr. T. B. Sinclair, Medical Officer, Hookworm Commission.
Dr. H. A. Bramwell, Supernumerary Medical Officer (acting).
Dr. S. C. Grant, District Medical Officer (acting).
Dr. R. L. Chamberlain, District Medical Officer.
Dr. W. J. Branday, Health Officer, Trelawny (acting).
Mr. O. G. Miller, Supernumerary Dispenser.
Mr. Edward Thomas, Chief Attendant, Lunatic Asylum.
Miss M. McIntosh, Matron.

TRANSFERS.

Dr. A. A. Anderson was transferred from the old to the new terms of appointment of District Medical Officers and assigned to the whole-time district of Port Antonio.

Dr. H. S. Lawrence was transferred from the Hookworm Commission to be Health Officer, St. Mary.

PROMOTIONS.

Miss B. McFarlane, from Assistant Storekeeper to Storekeeper, Lunatic Asylum.

RESIGNATIONS.

Dr. B. M. Wilson, Superintending Medical Officer.
Dr. J. A. Watson, D.M.O., Croft's Hill.
Miss N. B. Montague, Matron, Linstead Public General Hospital.
Mr. V. S. Magnus, Supernumerary Dispenser.

Retirements.

Dr. A. J. Thomas, D.M.O., Stony Hill.
Dr. H. Joslen, D.M.O., Claremont.
Dr. W. E. Wilson, D.M.O. Brown's Town.
Dr. R. M. Stimpson, D.M.O., Porus.
Miss E. M. Thompson, Matron, Jubilee Maternity Hospital.
Mrs. Julia Hogg, Storekeeper, Lunatic Asylum.

Deaths.

Dr. G. P. Campbell, D.M.O., Lower St. Andrew.
Mr. A. A. Carney, Chief Attendant, Lunatic Asylum.

In Addition.

Dr. J. M. Hall, Health Officer, Trelawny, seconded for duty as Assistant Medical Director, Bureau of Health Education.

Dr. L. M. Watson, Medical Officer, Hookworm Commission, awarded a Fellowship in Public Health by the Rockefeller Foundation in the U.S.A., for one year.

(b) *Financial—*

Expenditure—	£	s.	d.
Medical—General Administration:			
Personal Emoluments	41,560	16	0
Other Charges	17,350	13	11
Medical —Hospitals and Lepers' Home:			
Personal Emoluments	31,941	15	5
Other Charges	47,522	10	2
Lunatic Asylum:			
Personal Emoluments	22,015	4	0
Other Charges	20,853	4	5
Total Expenditure	181,244	3	11
Total Expenditure of Whole Colony	£2,058,077	9	6
Percentage of Expenditure on Medical Department	8.8%		
Revenue from Fees, etc.	£2,590	19	3

II.—PUBLIC HEALTH.

General Remarks.

There was no special prevalence of disease or epidemic of importance during the year. Following an abnormally heavy rainfall throughout the Island in 1931 there was a high incidence of Malaria. During 1932, however, this disease did not occur in epidemic form in any area.

The economic situation called for the continuance of the most careful expenditure, and the extension scheme of the Kingston Hospital, the construction of Maternity Wards to certain Public Hospitals of Nurses' quarters where these do not exist, and other much required improvements had again to be deferred.

Vital Statistics.

The death rate fell from 18.65 per 1,000 in 1931 to 17.21 in 1932. The decline in the general death rate has therefore continued and the ratio arrived at is but little higher than that for the year 1930 which is the lowest yet recorded.

It is satisfactory to be able to report that the Infant Mortality rate (the number of infants who died under the age of one year for every thousand births) was the lowest hitherto registered. During the past ten years a steady decrease in this ratio has taken place from 177 in 1922 to 140 in 1932. The Mortality rate for children under five years of age was 200 compared with 214 in 1931.

The birth rate for the year under review was 32 per thousand. The natural increase of population was therefore 15 per thousand. 71.71% of the births registered were illegitimate.

The following Return has been furnished by the Registrar General:—

The Puerperal State.

Causes of Deaths.	No.	Percentage Medically Certified.
Accidents of Pregnancy	16	87.50
Puerperal Haemorrhage	11	90.90
Other accidents of Childbirth	58	37.93
Puerperal phlegmasia alba dolens, embolism and sudden death		..
Puerperal albuminuria and convulsions	56	73.21
Puerperal Sepsis	47	89.36
Puerperal Insanity	1	100.00
	189	

This gives a maternal mortality rate of 5.52 per thousand births. In the categories "Fever (not otherwise defined)" and "Other ill-defined and not specified causes" it is likely that figures are included which should properly come under the heading "The Puerperal State." The ratio arrived at therefore is probably lower than the true maternal mortality rate.

ORGANIZATION OF THE MEDICAL SERVICE.

The recommendations of the Committee of the Legislative Council which reported in 1929, continued to be carried out. At the end of the year there were 42 Medical Districts; 12 District Medical Officers were serving on the old terms and 30 on the new terms. All new appointments were made under the new regulations, to which reference has been made in previous Annual Reports of this Department.

The establishment of Health Officers remained as it was in 1931, i.e., ten whole-time and two part-time officers who are paid by the Central Board of Health. The old system whereby Medical Officers of Health were appointed and paid by the Parochial Boards still exists in Westmoreland and St. Ann.

The retirement in November of Dr. Wilson, Superintending Medical Officer, on account of ill-health was as regrettable as it was untimely. During the seven years of his administration great progress in Public Health has been achieved and the re-organization of the Medical Service of the Island instituted in 1930 has proceeded upon a sound basis.

PUBLIC HEALTH WORK.

Modern Public Health programmes for the control of major causes of sickness and death were started in 1919 with the Hookworm Commission. Following on the success of this Commission, new programmes have gradually been introduced and in 1932 the following Units were operating:—The Hookworm Commission, School Hygiene and Dental Clinics, the Bureau of Health Education, the School for Sanitary Inspectors, the Malaria Commission, the Tuberculosis Commission, the Yaws Commission and Parochial Health Departments.

The work of the Hookworm Commission showed that in 1920 when new areas were taken under control, only 4% of the homes in rural areas had a latrine of any kind. In 1932 this figure has risen to 23%. It has also been ascertained that from 20% to 95% of the people in untouched rural areas are infected with Hookworm disease. The opportunities for the spread of this disease are thus seen to exist to a considerable extent though improvement is continually being effected.

Each year since 1919 has seen an extension of latrine construction, and in 1932 the Overseers of the "Sanitation Units" reported 3,921 new latrines for a population of about 19,000, while the Local Boards of Health obtained 10,705 new structures. The responsibility of subsequent inspection and maintenance is on the Local Board of Health.

The "Treatment" Units of the Hookworm Commission operated in the parishes of Manchester, St. James and St. Thomas. A total of 30,341 persons were examined, 17,910 were found infected and 44,832 treatments were administered. 16,186 cases were cured.

SCHOOL HYGIENE AND DENTAL CLINICS.

School Dental Clinics were conducted in the following eight parishes:—Kingston, St. Andrew, St. Mary, Clarendon, Trelawny, St. James, Hanover and Portland. A total of 148 schools were visited and 39,359 treatments were given to 14,988 children.

BUREAU OF HEALTH EDUCATION.

During 1932 Volume 7 of the Bulletin "Jamaica Public Health," was issued, the monthly circulation being 20,000. The Empire Health Week Number, as usual, provided programmes for Health Week including a Health Play which was staged by the majority of elementary schools. Special leaflets were issued regarding Hookworm Disease, Malaria, Yaws, Tuberculosis and Typhoid Fever.

The fifth session of the *School for Sanitary Inspectors* opened in November. There were 27 students including 15 from the staffs of the Central Board of Health and Parochial Boards.

THE MALARIA COMMISSION.

The rainfall for 1932 was above the average, though much less than the excessive amount in 1931. Malaria did not occur in epidemic form in any area. In general all the areas under the control of the Commission continued to show a reduction in anophelines and malaria. The exception to this occurred in the Annotto Bay area where an experimental attempt at economy resulted in a temporary rise of Malaria. Control was undertaken in 1931 in the following areas:—Golden Grove, Caymanas, Vere, Black River, Montego Bay, Oracabessa, Annotto Bay and Falmouth. In 1932 two areas, Sav.-la-Mar and Little London were added and it was necessary to exercise the greatest economy so as to allow of their addition.

The greater portion of the control work is by the use of Paris Green, this having been proved the cheapest method for general purposes. In certain areas, however, drainage, ditching and tidal canals are undertaken where these measures can be carried out at moderate cost.

Falmouth Area showed a great decrease in cases of malaria in spite of many mosquitoes caught at night-catches. The control of the main swamp near the town is still incomplete owing to inaccessibility. Plans have already been made to open another canal to connect the swamp with the ocean. This should make the water more brackish and assist in the prevention of breeding of A. albimanus mosquitoes.

Control of malaria in other than the large endemic areas is being carried out by Parochial Boards with increasing effectiveness.

The Tuberculosis Commission.

The aims of the Tuberculosis Work in progress in Jamaica are:—

(1) to collect information concerning the character of the disease and the incidence of its various manifestations under varying conditions throughout the Island;

(2) to determine how the disease spreads in a tropical country such as Jamaica and to learn what are the conditions that modify its transmission;

(3) while collecting this information to institute all available procedures that with present knowledge give promise of combating the disease so that the survey may be of current benefit to the Health Service of the Island, and

(4) upon the basis of newly acquired information to devise new preventive measures adapted to local conditions.

In addition to the Dispensary in Kingston there is a Mobile Unit with a specialist, portable X-Ray outfit, a technician and a nurse.

During 1932 a total of 1,854 new and 3,917 old cases visited the Kingston Dispensary. The nurses paid 6,539 visits to the homes of patients.

The examinations of 1,854 new cases showed the following:—1,179 did not have tuberculosis, in 29 the diagnosis was not completed, 37 had suspected tuberculosis, 268 showed positive sputum, 154 had the disease but with negative sputum, 180 had varying degrees of latent or arrested infection, while 7 had tuberculosis of other organs.

The Dispensary also continued the special survey of selected poor overcrowded sections of Kingston and began a survey on a section of better type for comparison. The survey aims at Tuberculin tests and X-Ray examination of every individual in the selected area. A total of 2,009 persons were thus examined.

The purpose of the Mobile Unit is to broaden the work of the Commission and to gain a wider view of the Tuberculosis situation. During the year the Unit operated in Falmouth, Montego Bay and Port Antonio. In addition to the routine work of a dispensary, special survey work was carried out by the use of methods somewhat different from those undertaken in Kingston.

A total of 1,089 persons were given the Tuberculin test, including groups of school children and estate labourers. Transport was provided for 612 of the 639 reactors so that they could be given X-Ray examination. 37 of these cases showed lesions.

The Health Officers in the Kingston and St. Andrew Corporate Area and in eight parishes now hold regular chest finding clinics.

During the past four years, Tuberculosis Wards have been built for indigent cases at the Poor Houses by the parishes of Kingston, St. Andrew, St. Mary, St. James, St. Ann, Manchester and Portland. In most other parishes special accommodation has been set aside for patients suffering from Tuberculosis.

Yaws Commission.

This is the most recent unit of co-operative public health work, which was organized early in the year in order to study Yaws in some detail. The aim of the Commission is to establish control measures based on treatment, and if possible, on prevention. Before this could be achieved it was necesssary to conduct preliminary clinical and epidemiological investigations together with an examination of the relative merits of certain drugs. The work of 1932 was spent in making these studies.

As the central feature of a survey of the problem is a study of yaws patients in their natural environment, an area around Bath in St. Thomas, with a population of about 2,500 was selected. A method was devised by which every home was visited and all infected cases were located. At the field office, a clinic was established which afforded facilities for the examination of patients, dark-field examinations, collection of blood for serological study, and other minor laboratory procedures.

Investigations along the lines indicated above brought out a number of interesting facts. The incidence of infection was found to be high, being 65% of the unselected cases examined; while nearly 80 per cent. of persons over 20 years of age had suffered from yaws. Infection occurred in 76 per cent. of patients before the age of 10 years, and 91 per cent. of the patients contracted the disease before adolescence. The disease is less common among the better class of people, though a family free from yaws may live in close proximity to an infected family.

During the year 1,500 patients were examined, of whom 917 were found to have yaws. Treatment was given to 490 patients, the other positive ones being old cases which were no longer infectious or in need of drugs. The Wasserman test and the Eagle flocculation test were used as a routine measure and examination of the spinal fluid was made in 305 patients.

The work of the Yaws Commission during 1932 brought out definite facts regarding the clinical course, of the disease, the nature and extent of the infectious lesions, and the value and limitations of certain drugs. Also, there was developed a method of survey, based on case histories and serological tests, which can be used to locate infectious cases in districts where control work is conducted. During 1933 it is planned to apply these methods of survey and treatment to other areas where yaws is prevalent.

Housing.

The character of the housing accommodation of the wage-earning population remains essentially as described in Chapter V of the Annual General Report for 1931. The main defects are insufficient ventilation and overcrowding, especially at night, also inadequate water supplies. Despite the economic conditions of the great majority of the inhabitants, however, it can be stated that, in rural areas particularly, the types of houses show gradual improvement in materials with which constructed, design, accommodation and in latrine buildings. The Hookworm Campaign, the follow-up work supervening thereon, the influence of Sanitary and Health Officers, the Tuberculosis Commission and continued Public Health Education have been instrumental in effecting this advancement.

The unhealthy areas in Kingston demand attention. Improvement schemes are under consideration by the Kingston and St. Andrew Corporation to allow of the abolition of these slums.

The various Health Organizations have emphasized the necessity for general cleanliness of premises, and measures to prevent mosquito breeding, also directed the attention of the public to the relationship between overcrowding the disease.

Progress in respect to Water Supplies was continued in several of the larger and certain smaller towns. Further improvements to the Kingston supply were under construction, following the scheme of Mr. Magoon of the Rockefeller Foundation. At Linstead the new Water Works were completed, and piped water systems were installed for Stewart Town and Ulster Spring. Village water supplies were protected from infection or pollution.

The relevant sections of Public Health Law 18 of 1925 and of the Regulations thereunder were applied, to an extent commensurate with economic conditions, the general standard of education of the poorer classes, and attainable results.

OTHER PUBLIC HEALTH WORK, INCLUDING THE SANITARY SERVICES OF PAROCHIAL BOARDS.

This is referred to in Section III, Sanitation, and in the Appendices, where detailed reports will be found.

THE HURRICANE IN CAYMAN.

The hurricane in Cayman caused 80 deaths. After information concerning the disaster was received appropriate relief measures were immediately arranged by Government, including the detachment of a Government Medical Officer with a consignment of Medical Stores. Dr. U. N. Murray, Assistant Medical Officer at the Mental Hospital volunteered for this service and he was selected therefor. His report will be found at the end of this Section.

(i) GENERAL DISEASES.

Malignant Disease.—'There were 263 In-patients and 45 deaths in the Government Hospitals of the Island These numbers are greater than those in 1931. In 1928 the figures were 195 admissions and 21 deaths. The increasing willingness of the people within recent years to avail themselves of hospital treatment in all serious illnesses may afford an explanation of the higher numbers recorded.

Diabetes.—74 cases were treated in the hospitals, with 10 deaths. In 1931 there were 50 cases and 12 deaths.

Diseases of the Nervous System accounted for 458 admissions to and 76 deaths in Government Hospitals. Last year these figures were 399 and 65 respectively.

Diseases of the Eye.—A large proportion of these cases were treated as out-patients of which there were 690 in hospitals outside Kingston. 215 cases were admitted to the wards in District Hospitals, and 205 to the Kingston Hospital, where 208 ophthalmic operations were performed.

Diseases of the Circulatory System.—There were 584 admissions, and 132 deaths in the hospitals, compared with 781 In-patients and 118 deaths in 1931.

Diseases of the Respiratory System.—The returns for Kingston Hospital were 620 cases with 133 deaths. These figures are higher than those which correspond for last year. In this connection Measles and Influenza were prevalent towards the end of 1932. In the District Hospitals there were 604 cases with 89 deaths.

Diseases of the Digestive System.—This group of diseases continues to account for a large number of out-patients. 2,765 cases were admitted to and 238 deaths occurred in Government Hospitals.

Diseases of the Genito-Urinary System (Non Venereal).—The numbers treated in the wards were 3,126 with 177 deaths.

Accidents and Wound Cases.—There were 445 admissions to Kingston Hospital with 19 deaths. The admissions to District Hospitals were 3,029 of whom 70 died.

(ii) COMMUNICABLE DISEASES.

Enteric Fevers.—929 cases were notified in 1932 compared with 900 in 1931 and 928 in 1930. Two localised epidemics one in St. Thomas and the other in Westmoreland provided 105 of the 929 notifications. Apart from these two epidemics the general Island incidence continues to fall steadily. This fall has been most striking in the city of Kingston. 181 cases were treated in the Kingston Public Hospital and 510 in the District Hospitals.

Malaria.—230 cases with 3 deaths were treated in the Kingston Public Hospital. In the District Hospitals 7,539 cases were treated with 106 deaths.

Small outbreaks occurred, as was expected, in the districts which had a high rate in 1931, with some involvement of adjacent areas which had not been affected in that year. Adequate arrangements however, had been made to meet these outbreaks, and it is worthy of note, that, with one exception, none of these occurred within the areas under the control of the Malaria Commission.

The Parochial Health Departments of Portland, Trelawny, St. James, Westmoreland and St. Elizabeth are making contributions towards the work of control along the lines recommended by the Malaria Commission.

Pulmonary Tuberculosis.—A total of 1,307 cases were notified compared with 1,327 in 1931. 30% of the 1,932 notifications were from the city of Kingston. 62 cases were treated in the Kingston Public Hospital and 408 cases in District Hospitals.

The interest in this disease continues to increase as a result of the well maintained efforts of the Tuberculosis Commission, the Anti-Tuberculosis League and Parochial Health Departments. Of special value has been the operation of the Mobile Unit which functioned in Falmouth, Montego Bay, Port Antonio and Manchioneal during the year. Its activities produced an apparent increase of the disease in those areas by providing free specialist diagnosis, but the Unit has created Island wide interest in Tuberculosis and is indicating modern methods of dealing with the problem presented in Jamaica.

Venereal Diseases.—32,105 cases of Venereal Diseases were treated at the Kingston Public Hospital. In the District Hospitals the numbers of in-patients were 705 for Syphilis and 661 for Gonococcal Infection, while the out-patients numbered 4,560 and 2, 328 respectively. District Medical Officers, in their reports, again refer to the lack of knowledge regarding these diseases, delay in submission to, and failure to continue treatment.

Yaws.—33,338 cases were treated during the year. There is reason to believe that yaws is not limited to a few areas in the Island, but that it is moderately widespread. The problem of control, therefore, is one of considerable magnitude. There is evidence that the number of new infections is decreasing, and the Yaws Commission will direct particular attention to the elimination, as far as possible, of the sources of infection in given areas in an endeavour to prevent the occurrence of new cases, by careful survey, treatment of infectious cases and follow-up work. Based upon investigations made during the year, the Medical Officers of the Yaws Commission urge that neo-arsphenamine be used in treatment, and that this drug be made freely available therefor.

Small-pox.—There were no cases of this disease. 28,623 vaccinations were performed during the year.

J. A. Henderson,
Acting Superintending Medical Officer.

Report by Dr. U. N. Murray on his visit to Cayman Islands as a result of the Hurricane.

Responding to an urgent call to proceed to Cayman Brac to treat the sick and wounded following a hurricane in that Island, I embarked on the R.M.S.P. Steamer the "Loch Katrine" on Saturday afternoon 12th November at 5 o'clock and reached Cayman Brac the following day at 2 p.m.

2. When I arrived there the seas were very rough but notwithstanding this, the medical and other stores which accompanied me, were transferred in record time to the Motor Schooner "Nanunco," which conveyed the Commissioner, Dr. G. N. Overton and two nurses from the Island of Grand Cayman.

3. These stores had to be transferred to so-called "Cat" boats to be brought ashore and it being so late at night—it was then about 8 o'clock—and the seas having become more rebellious, it was decided that we should sleep on the "Nanunco" rather than run the risk of landing.

4. At daybreak the following morning, November 14th, the sea had calmed down sufficiently and we went ashore by means of Cat boats and the stores followed on as expeditiously as was humanly possible. We landed on the west side of the Island and began our work of attending to the wounded.

5. The first patient we treated was a woman with a fractured collar bone whom we encountered on our way to the place it was decided should be our headquarters—a six roomed house which escaped severe damage by the hurricane.

6. To reach this house took us over rocks, sand and swamps and made walking obviously difficult. When we eventually reached this house we found it to be quite suitable for practical purposes. It was sufficiently roomy for storing our medical supplies as well as for sleeping purposes. It was soon broadcasted that the Doctors had arrived and for two days we were kept busy treating injuries which ranged from minor scratches to fractures. Actually in that particular Section there were six serious cases, to wit,

(1) A fractured leg.
(2) A septic leg which later had to be amputated and to which reference will again be made.
(3) One fractured collar bone in a little girl.
(4) One fractured collar bone in an adult female.
(5) Two lacerated scalp wounds in a little boy which took several stitches under Anesthesia.
(6) A fractured rib in an old woman.

7. Having heard that there were casualties in the eastern section of the Island, particularly at a place called the "Creek," ample first aid material was sent to responsible citizens who were given directions how to use it as it was impossible to reach that section owing to the impassable roads.

8. By the afternoon of the 16th the western end of the Island had been taken care of from the point of view of the casualties and Dr. Overton and one Nurse returned to Grand Cayman leaving the other Nurse and myself to carry on. The next day, the 17th, I visited several houses, or what was left of them, and tents within a radius of three miles, and was quite satisfied that the situation as far as the West end was concerned was well under control. In the afternoon of the 17th after returning from my rounds, I heard that the H.M.S. Dragon had arrived at the "Creek" (already mentioned in a previous paragraph). This settled the fears I had about the many serious cases reported to me a few hours before, and also gave me the opportunity of getting immediate aid for amputation of the septic leg which showed no signs of improvement. I sent a message to the Medical Officers on the Dragon, who came promptly to my rescue, and we amputated the leg under as aseptic conditions as the surroundings allowed. This woman, however, developed further sepsis and she was removed to Grand Cayman for hospital treatment. I understood before I left on December 5th that she was on the way to recovery.

9. By this time the Medical Officers assured me in respect of those "Creek" casualties that they saw only four cases that might be considered serious, and of these I made a note with the hope of reaching that section within a day or two. This I did in due course and satisfied myself that all were doing well.

10. On the 3rd of December, I had a general review of the situation and found that my casualty list had been reduced to one—the old lady with the fractured leg. Union was undoubtedly taking place and she could be safely transferred to Grand Cayman on the "Cimboco" on its next call to Cayman Brac, about the 14th instant, so as to be nearer the Medical Officer stationed in that Island.

11. Approximately two hundred cases of minor injuries, and ten serious cases would, in short, constitute the extent of the casualties, exclusive of deaths which numbered about eighty in Cayman Brac. About sixty-seven dead were disposed of before my arrival, and during my stay a few bodies were recovered from wreckage and burned.

12. There were no cases of gastro-intestinal disorders arising out of the catastrophe up to the time of my departure.

13. In closing perhaps a few general remarks may not be out of place. The people are a sturdy lot and are facing the future with confidence.

14. The water situation was giving some concern, but a little before I left a couple of wells were found in the interior, the water from which was said to be quite good. The people were warned to boil water for drinking purposes having regard to the possibility of pollution, a factor which has to be noted under the circumstances.

15. The distribution of food and clothing has been well organized by the Commissioner who is a very energetic administrator.

16. A new road was started under the "Bluffs" and had reached a distance of approximately five miles up to the 5th December on which date I sailed on the "Cimboco" which arrived in Jamaica December 7th.

17. It has been an interesting undertaking fraught with many difficulties, but having regard to the nature of my mission it was an undertaking worth while. I feel better for having accepted the invitation of the Government to proceed to Cayman Brac.

(Sgd.) Uriah N. Murray.

III.—SANITATION.

1. Administration.

(a) Personnel—Dr. J. A. Henderson, Acting Superintending Medical Officer, acted as Chairman of the Central Board of Health from 2.11.32 to the end of the year in place of Dr. Wilson, who retired from the Medical Service. During Dr. Wilson's chairmanship the Central Board of Health made outstanding progress in the development of a Public Health policy for the Colony with the co-operation of the Rockefeller Foundation, the outstanding features being the organization of modern programmes for the study and control of major health problems such as Hookworm Disease, Malaria, Tuberculosis and Yaws. An essential requirement for progress being trained whole-time personnel, his policy has included the appointment, as opportunity occurred, of Health Officers with post graduate training in Public Health, and Sanitary Inspectors trained at the Jamaica School for Sanitary Inspectors. This School is also a development during his chairmanship.

Dr. J. M. Hall, Medical Officer of Health for Trelawny, was appointed to act as Senior Sanitary Medical Officer as from 2.11.32 and Dr. W. J. Branday took his place in Trelawny.

The attendance of members of the Central Board of Health at its 12 meetings were:—

The Hon. Dr. B. M. Wilson, Chairman ..	10
Dr. J. A. Henderson, Acting Chairman ..	2
The Hon. Dr. Lawson Gifford	10
Dr. D. J. Phillips	9
Mr. J. M. Nethersole	7
Mr. N. Roots	11
Lieut.-Col. Stevenson, R.A.M.C.	—
Dr. S. Lockett . . .	6

The Senior Sanitary Medical Officer was present on 4 occasions and the Acting Senior Sanitary Medical Officer on 2.

1. *Parochial Staff.*—Table I shews the Staff employed by the Local Boards of Health.

Table I.

Parish	Health Officers.		Sanitary Inspectors.				Clerks.	Dental Surgeon.	Others.
	Whole-time.	Part-time.	Chief.	Whole-time.	Part-time.	Specially for latrine construction.	Whole-time.	Part-time.	(Including Veterinarian and Oculist.)
Kingston ..	1	..	1(1)	16(8)	..	..	1	1	3
St. Andrew ..	1	..	1(1)	12(4)	..	..	1	1	8
St. Thomas ..	..	1	1(1)	4(4)	1	..	..	..	5
Portland ..	1	..	..	1(1)	3(1)	..	..	1	2
St. Mary ..	1	..	1(1)	7(4)	..	..	1(1)	1	6
St. Ann ..	..	4	..	7(3)	3	3	..	..	1
Trelawny ..	1	..	..	4(4)	..	..	1	1	4
St. James ..	1	..	1(1)	5(3)	..	..	..	1	2
Hanover ..	1	..	..	..	4(1)	3(3)	..	1	3
Westmoreland ..	..	2	..	1	5	3(2)	..	..	6
St. Elizabeth ..	1	..	..	3(3)	..	..	..	..	2
Manchester ..	..	1	1(1)	3(1)	..	1	..	..	9
Clarendon ..	1	..	1(1)	6	..	..	1	..	9
St. Catherine ..	1	..	1(1)	4(2)	5(3)	..	..	..	5
Port Royal ..	..	1	..	..	1	..	..	..	..

Note.—The figures in brackets shew the number of persons who hold a certificate from the Sanitary Inspectors' School or from the Royal Sanitary Institute.

Hookworm Staff.—Table 1A shews the Staff of the 2 Sanitation Units and 2 Treatment Units of the Hookworm Commission employed by the Central Board of Health.

TABLE 1A.

Medical Officers.	Overseers of Works.	Clerks.	Nurses.
2	2	10	16(7)

Note.—The figure in bracket shews the number of persons who hold a Certificate from the Sanitary Inspectors' School or from the Royal Sanitary Institute.

2. *Hookworm Commision.*—There are 2 Sanitation Units and 2 Treatment Units. Each Sanitation Unit consists of an Overseer of Works employed by the Central Board of Health, and a number of Sanitary Inspectors employed by the Local Board of Health of the parish in which the Unit is working. Each Treatment Unit is composed of one Medical Officer, one Chief Clerk, one Assistant Clerk, two Microscopists and eight or nine field workers called "nurses."

3. *Malaria Commission.*—The staff under the control of the Central Board of Health consists of one Medical Officer as field director, two microscopists, ten field inspectors and a varying number of labourers. Local Boards of Health co-operate by supplying occasional labour and a certain amount of material.

The Hookworm Commission and the Malaria Commission, inaugurated on a co-operative basis between the Government and the Rockefeller Foundation, are now entirely paid for by the Government, but continue to be under the guidance of the Director of the Rockefeller Foundation for Jamaica.

4. *Tuberculosis Commission.*—The staff is divided into three sections. The Clinical section contains two medical officers, four nurses, one clerk, one technician, and one caretaker. The X-Ray and Survey Department has three medical officers, two clerks, one technician, one inspector and two nurses. The Mobile Unit consists of one medical officer, one clerk and one nurse.

The Government supplies drugs and stationery, and the Rockefeller Foundation pays all other expenditures.

5. *Yaws Commission.*—This contains three medical officers, two clerks, one technician, three field assistants and three caretakers.

The Government pays one medical officer and supplies drugs and stationery, the Rockefeller Foundation paying all other expenditures.

6. *School Dental Clinics.*—Eight of the parishes now have School Dental Clinics, each of which employs a dentist part-time. The parishes of Kingston, St. Andrew and St. Mary pay the whole cost of their clinics. St. James, Hanover and Portland obtain assistance from the Central Board of Health and from the Rockefeller Foundation. Trelawny and St. Ann are assisted by the Central Board of Health.

Detailed reports of the Commissions and School Dental Clinics are to be found in Appendix III.

(b) Finance.—Table II shews the expenditures of the various parishes for Public Health.

TABLE II.

	Kingston.	St. Andrew.	St. Thomas.	Portland.	St. Mary.	St. Ann.	Trelawny.	St. James.	Hanover.	West-moreland.	St. Elizabeth.	Man-chester.	Clarendon.	St. Catherine.	Pt. Royal.	
1. Administration—	£ *	£ *	£ *	£ *	£ *	£	£ *	£ *	£ *	£	£ *	£ *	£ *	£ *	£ *	£
H. O. Salaries ..	800	800	300	681	625	480	752	632	600	400	600	400	719	757	600	..
T.A. ..	150	150	100	150	200	280	200	100	100	..	150	100	150	200	..	..
S. I. Salaries ..	3,144	1,541	624	279	915	955	600	817	84	180	270	525	800	858	52	..
T. A. ..	481	278	178	97	264	135	158	126	..	..	75	152	150	314	..	..
Clerks	163	95	..	100	150	..	110	78	..	..	..	..	..	120	..	..
Messengers ..			..	21	26	..	20	..	..	..	2	..	27	21	..	..
Total 1 ..	4,738	2,864	1,202	1,328	2,180	1,850	1,840	1,753	784	580	1,097	1,177	1,846	2,270	652	..
2. Cleansing ..	7,701	5,144	503	863	1,986	1,292	300	1,152	217	494	172	291	289	1,287	80	..
3. I. D. Prevention ..	524	449	46	286	78	430	11	322	474	1,846	19	578	429	174	6	..
4. Cemeteries ..	1,500	246	72	171	187	85	47	..	35	319	13	202	10	154	10	..
5. Child Welfare ..	463	135	150	38	83	20	58	217	120	279	40	400	..	554	..	..
6. Conservancy ..	113	4	..	46	197	50	50	..	8	84	42	24	37	..	190	..
7. Drainage ..	..	..	150	255	184	150		346	86	175	50	..	168	163	..	..
8. Water Supply ..	464	112	3,345	431	120	300	512	152	277	88	38	1,740	155	776	..	..
9. Miscellaneous ..	6,353	213	..	68	221	55	..	60	97	..	25	19	286	237	..	..
Total 2 ..	17,118	6,303	4,266	2,158	3,056	2,382	978	2,249	1,314	3,285	399	3,254	1,374	3,345	286	..
Grand Total ..	21,856	9,167	5,468	3,486	5,236	4,232	2,818	4,002	2,098	3,865	1,496	4,431	3,220	5,615	938	77.928

* Salaries and Travelling Allowances of Medical Officers of Health paid by Central Government.

The Central Government spent the following sums on matters that affect the public health:—

Central Board of Health Expenses ..	£10,730 17 11
Quarantine Expenses	971 3 4
Hookworm Campaign	6,965 2 2
Venereal Disease	1,174 15 3
Yaws	1,930 13 6
Vaccination Fees	1,495 9 1
Infectious Disease Control	678 13 11
Child Welfare Association	1,025 0 0
Malaria Commission	3,477 19 3
Bureau of Health Education	225 8 8
School Dental Clinics	501 1 5
Training School for Sanitary Inspectors ..	40 6 4
	£29,216 10 10

The Rockefeller Foundation spent £9,319 4s. 1d. as follows:—

Central Office		£684 6 8
Tuberculosis—X-Ray Laboratory ..	£3,521 17 11	
Clinic	2,160 13 0	
Mobile Unit	459 19 4	6,142 10 3
St. Mary Health Unit		126 17 4
Trelawny Health Department		147 8 6
St. Catherine " "		291 11 6
Malaria Commission		146 1 0
School Dental Clinic, Portland		37 5 0
" " St. James		103 11 2
" " Hanover		112 17 4
Yaws Commission		1,526 15 4
Total		£9,319 4 1

It is to be noted that this amount does not include the salaries of the Director for Jamaica and five other Medical Officers on the permanent staff of the Foundation.

Legal.—The following Law affecting Public Health was enacted in 1932:

No. 12. A Law to authorise the use for sewerage extension of part of the moneys to be raised under Law 25 of 1923.

The following is a list of all notices in the Jamaica Gazette affecting Public Health:—

No. 839. Dornock Water Supply District, Limits of.
" 398. Llandewey Market Limits.
" 376. Llandewey Market, Rules for
" 95. Market, Oracabessa, closing of old premises and temporary establishment at new site.
" 802. Building Regulations, Port Royal.
" 717. Dangerous Drugs Law, 1924, Part III, applicable to Acetyldihydrocodeinone.
" 61. Falmouth, Bye-Laws re erection of Buildings in.
" 63. Lluidas Vale Market Limits.
" 580. Market Rules, Corporate Area, addition to.
" 68. Market Rules, St. Catherine.
" 648. Markets, St. Ann, amendment of Rules governing.
" 267. Markets, St. Thomas, Rules re addition to.
" 487. Montego Bay Building Bye-Laws, additions to.
" 469. Port Antonio—Altering limits for purposes of Slaughter House.
" 674. Port Antonio Market—Alteration of Schedule of Fees.
" 893. Port Antonio, Water Rates.
" 241. Public Tanks, Sherwood Forrest and All Spice Grove—free distribution of water from.
" 650. Sanitary Conveniences, Corporate Area, Rules governing.
" 624. Tanks (Public), Portland, charges for water.
" 265. Tanks, Reservoirs, etc. (Parochial), Manchester, amendment of Rules re.
" 131. Tanks, St. Elizabeth—free distribution of water from.
" 327. Ulster Spring Water Supply District, limits of.
" 372. Port Morant, limits for purposes of a Water Supply.
" 746. Shop Assistants' (Hours) Law, 1925, provisions of extended to Montego Bay.
" 371. Bread, etc., conveyance in Manchester.
" 855. Health Regulations Port Royal.
" 551. Health Regulations, St. Mary.
" 465. Water Rates, Dornock Water Supply District.
" 132. Water Rates, Ulster Spring.
" 840. Dry Gully Spring at Darley, Portland—declared to contribute to a Public Water Supply.
" 579. Jones River, St. Elizabeth—declared to contribute to a Public Water Supply.
" 60. Helicon and Dry Harbour Public Tanks—declared to be Public Water Supplies.
" 851. John Spring at Good Hope, Portland (portion of)—declared to contribute to a Public Water Supply.
" 268. Woodfin's and Vassell's Springs at Warsop in the parish of Trelawny—declared to contribute to Public Water Supplies.
" 152. Hector's River, Williamsfield River, Barracks River and Black River (portions of)—declared as contributing to Public Water Supplies.
" 372. Port Morant Water Rates.

2. VITAL STATISTICS.

Population.—The last census was taken in 1921, and since then the population has been estimated annually by adding the total number of births and arrivals into the Island each year, then deducting the number of deaths and departures. On December 31st, 1932, it was estimated to be 1,073,493.

It is believed that the reporting of deaths is complete enough for this method of estimating, but it is possible that there is a shortage on reporting of births, which would create considerable error over a ten year period.

Table 3 shews the crude data for the Island over the period 1921-1932, 1921 being the last census year.

TABLE III.

Years.	Estimated Population 31st December.	Birth Rates.	Death Rates.	Infantile Mortality.
1921	871,114	34.9	28.3	197
1922	885,692	37.3	22.9	177
1923	894,413	38.2	22.7	171
1924	904,405	36.8	21.7	161
1925	916,620	34.6	21.4	173
1926	936,927	38.5	20.5	168
1927	953,768	34.8	21.1	173
1928	974,742	35.8	19.7	157
1929	994,419	34.2	18.4	160
1930	1,022,152	37.0	17.0	141
1931	1,050,667	34.8	18.6	153
1932	1,073,493	32.3	17.2	141

Table IV shews the percentage of deaths medically certified by parishes over the 5 year period 1928 to 1932 inclusive.

TABLE IV.

Parish.	1928.	1929.	1930.	1931.	1932.
Kingston	81.3	82.4	84.4	86.3	84.2
Port Royal	75.0	100	88.9	90.9	100
St. Andrew	49.5	46.4	44.3	49.1	52.7
St. Thomas	30.4	33.3	35.1	33.9	40.1
Portland	29.8	26.1	27.0	30.9	31.4
St. Mary	25.5	27.5	27.8	28.3	34.4
St. Ann	19.3	21.9	22.2	22.0	25.2
Trelawny	21.8	22.3	27.2	29.6	33.8
St. James	20.6	23.5	25.7	29.5	37.2
Hanover	20.1	23.8	27.4	24.9	25.2
Westmoreland	21.5	23.2	22.8	27.2	27.6
St. Elizabeth	13.1	14.2	15.3	15.1	16.9
Manchester	16.2	20.0	16.8	21.2	25.4
Clarendon	19.0	23.8	22.3	22.4	21.7
St. Catherine	23.1	25.0	22.8	28.0	28.9
Whole Island	29.1	30.8	30.8	33.0	29.1

The Health Officer for Trelawny notes in his report as follows: -

> "It is seen that the number of deaths medically certified have steadily increased in each year."

The Health Officer for St. Catherine notes as follows:

> "28.9% were certified—a slight improvement over last year, and the highest percentage since 1926. This is largely the result of efforts on our part to improve death registration in the parish."

These two parishes have demonstrated that improvements in medical certification of deaths can be obtained in a relatively short time where the Health Officer has the facilities for keeping death records. The following Parochial Health Departments with whole-time Medical Officers of Health receive a duplicate record of each death registered by District Registrars:—St. Mary since 1929, Trelawny since 1930, St. Catherine since 1931 and Portland in 1932.

Vital Statistics are essential to the Medical Department and especially to the Central Board of Health. The information is necessary so as to have constant knowledge of health problems and to measure the progress being made in dealing with them.

Up to 1928 no complete record of births or deaths were kept by the Departments most interested in them, namely, the Central Board of Health and the Parochial Health Boards. The only vital records kept by these Departments up to then being morbidity from notifiable infectious diseases and incomplete mortality records of infectious diseases.

Since 1928 the Parochial Health Departments mentioned above, which keep complete records of deaths have begun one by one to submit to the Central Board of Health monthly or quarterly summaries of deaths with approoriate discussions. With the exception of these parishes the Central Board of Health does not have readily available at all times a complete knowledge of the raw data of the Island's Vital Statistics though these are obtainable from the Registrar General.

The Rockefeller Foundation gave the services of a Statistician, Dr. Hugo Muench, for the purpose of studying the Vital Statistics of Jamaica. Through the courtesy of the Registrar General he examined the system used for recording and tabulating births and deaths, and made statistical analyses of special problems such as "undefined fevers."

Inter alia, he states:—

"The greatest defect of vital statistics registration in Jamaica is its dissociation from the medical work of the Island. While statistics are in general available to the central medical authorities and to parochial health officers, the original certificates do not pass through the hands of medical men at any time . . . . . Since one of the main ends of vital statistics registration is the check it furnishes in Public Health activities, it would be desirable to have a closer relation between the two services.

While Jamaica follows the procedure of the United Kingdom in the respect of separation of registration and health departments, most other countries have recognized the advantages of a closer union.

Almost every Annual Report of the Registrar General's Department from the beginning of the present system, deplores the fact that so small a proportion of death certificates is accompanied by medical certificates of cause of death. This fault, like other defects in the registration of vital statistics, is inherent in conditions of life in Jamaica. Great improvement in this respect, however, has been taking place and may be expected to continue."

TABLE V.

Parish.	Estimated Population on 31st December, 1932.	Birth Rate per 1000 of Population 1932.	Death Rate per 1000 of Population 1932.	Illegitimate Rate per 100 Births 1932.	Infantile Mortality Death Rate per 100 Births Under 1 year 1932.	Infantile Mortality Death Rate per 100 Births Under 5† years 1932.
Kingston ..	73,039	36.85	24.85	64.57	12.58	18.33
Port Royal ..	1,072	15.00	5.62	75.00	18.75	18.75
St. Andrew ..	59,684	33.95	26.37	62.45	18.12	24.46
St. Thomas ..	48,913	32.75	19.26	80.22	12.17	18.20
Portland ..	57,945	30.65	17.22	72.39	13.88	18.82
St. Mary ..	85,248	29.97	17.12	77.27	12.95	18.55
St. Ann ..	88,480	32.40	15.11	66.13	11.73	18.00
Trelawny ..	41,495	32.19	16.94	73.71	17.82	23.94
St. James ..	50,505	43.26	21.97	77.87	17.50	22.08
Hanover ..	46,556	36.07	19.22	77.37	15.78	24.30
Westmoreland	82,918	33.94	17.19	69.21	15.81	22.47
St. Elizabeth ..	97,575	34.08	15.79	73.19	14.72	20.09
Manchester ..	78,996	34.92	13.66	66.48	10.34	13.86
Clarendon ..	102,413	34.61	15.85	69.75	13.36	20.49
St. Catherine	113,475	29.52	16.75	78.48	14.18	20.43
	1,028,314					
Add excess Arrivals over Departures from Census Day 25th April 1921 to 31st December, 1932 ..	45,179					
Whole Island	1,073,493	32.27	17.21	71.71	14 09	20.02

3. Communicable and Infectious Diseases.

Table VI shews the notification of cases of Infectious Diseases for the year, by months and by parishes.

Table VI.

	Typhoid.	Para Typhoid.	Dysentery.	Pulmonary Tuberculosis.	Leprosy.	Chicken Pox.	Diptheria.	Scarlet Fever.	Erysipelas.	Cerebro-Spinal-Meningitis.	Poliomyelitis.	Encephalitis Lethargica.	Puerperal Fever.
By Months—													
January ..	80	..	5	101	1	21	3	..	2	3	..	..	5
February ..	72	..	3	120	2	34	..	..	..	..	..	..	2
March ..	71	1	5	103	1	52	2	..	1	2	1	1	2
April ..	69	..	5	125	5	119	1	..	3	..	..	..	3
May ..	99	1	10	128	1	76	2	..	..	1	..	1	4
June ..	65	..	2	122	4	29	1	1	1	..	..	1	2
July ..	71	..	11	99	1	13	..	..	3	2	..	1	4
August ..	83	1	7	100	1	10	1	..	..	..	..	..	1
September ..	75	..	4	101	1	9	2	..	..	1	1	..	3
October ..	107	..	5	92	1	11	4	..	..	..	..	..	5
November ..	86	..	3	102	..	9	6	..	1	..	..	..	4
December ..	48	..	4	114	5	5	4	..	2	..	..	..	2
Total ..	926	3	64	1,307	23	388	26	1	13	9	2	4	37
By Parishes—													
Kingston ..	124	..	24	410	4	101	15	..	1	3	1	..	3
St. Andrew ..	53	..	8	155	1	80	2	..	..	2	..	1	..
St. Thomas ..	87	..	5	72	..	6	..	..	..	..	..	..	2
Portland ..	45	..	5	66	..	24	..	..	..	1	1	..	..
St. Mary ..	119	..	4	92	1	30	1	..	..	..	..	..	4
St. Ann ..	54	..	..	82	1	69	..	..	..	..	..	..	3
Trelawny ..	20	..	..	27	2	4	..	..	1	..	..	..	1
St. James ..	117	1	3	120	..	13	3	1	5	..	..	2	2
Hanover ..	11	..	3	24	1	..	1	..	4	..	..	1	12
Westmoreland	80	..	1	32	2	3	3	..	1	1	..	..	1
St. Elizabeth	70	..	2	27	..	3	..	..	..	1	..	..	1
Manchester ..	43	1	..	35	2	8	..	..	..	..	..	..	..
Clarendon ..	53	..	6	67	2	5	1	..	1	1	..	..	7
St. Catherine	50	1	3	96	4	42	..	..	..	..	..	..	1
Port Royal ..	..	..	..	1	1	..	..	..	..	..	..	..	..
From ship board ..	..	..	..	1	2	..	..	..	..	..	..	..	..
Total ..	926	3	64	1,307	23	388	26	1	13	9	2	4	37

Pulmonary Tuberculosis.—The number of cases notified each year has shewn a steady increase since 1926, when 619 were notified. For several years prior to that the number had fluctuated between 450 and 600 except for a rise during the Great War when the maximum of 867 was reached in 1919. The year 1932 shews 1,307 cases, nearly double the number for 1926.

While an increase in the occurrence of the disease, attributable to various causes may partly account for this increase in notification, an apparent increase is undoubtedly due to the combined activities of the Tuberculosis Commission, the whole-time Health Departments and the Anti-Tuberculosis League together with the educational campaign conducted by the Bureau of Health Education. Taking the parishes of St. Mary, St. Catherine, Trelawny and Portland together, of 281 cases notified, 114 were notified by Health Officers, while 519 cases including cases from Kingston, St. Andrew and other parts of the Island were notified by the Tuberculosis Dispensary in Kingston.

In considering the question as to whether the disease is increasing in Jamaica or not it is interesting to compare the death rates at various periods.

The following table shews the average annual death rates from Pulmonary Tuberculosis per 100,000 population for the periods stated.

Year.	Average annual death rate from Pulmonary Tuberculosis per 100,000 population.	Case rate per 100,000 population.
1921-1925 inclusive ..	157.1	61.3
1926–1930 do. ..	130.0	98.4
1931 ..	140.1	126.6
1932 ..	122.9	121.7

In recent years there has been steady improvement in diagnosis, location of cases and registration of deaths from Tuberculosis. While in the case rate there has been a marked increase, there has not been a corresponding increase in the death rate. Indeed the death rate from Tuberculosis in 1932 is the lowest on record. It accordingly would be unsafe to draw any deductions as to the trend of the disease.

Pulmonary Tuberculosis.

Parish.	1930.		1931.		1932.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Kingston	348	161	453	186	410	146
Pt. Royal	4	1	3	1	1	..
St. Andrew	132	221	171	223	155	214
St. Thomas	50	67	54	87	72	70
Portland	37	78	44	107	66	85
St. Mary	83	103	86	122	92	101
St. Ann	73	84	108	100	83	96
Trelawny	49	36	43	37	27	20
St. James	55	40	101	55	120	53
Hanover	10	28	17	43	24	34
Westmoreland	27	73	14	66	32	48
St. Elizabeth	18	93	37	106	27	101
Manchester	36	89	35	74	35	82
Clarendon	63	70	87	71	67	67
St. Catherine	97	153	74	178	96	135

Since 1928 seven out of the fourteen parishes have provided special wards for isolated indigent cases.

The Anti-Tuberculosis League increased its activities during the year and now pays the salaries of three whole-time nurses and one part-time for home visiting. Seven parishes have branches of the League.

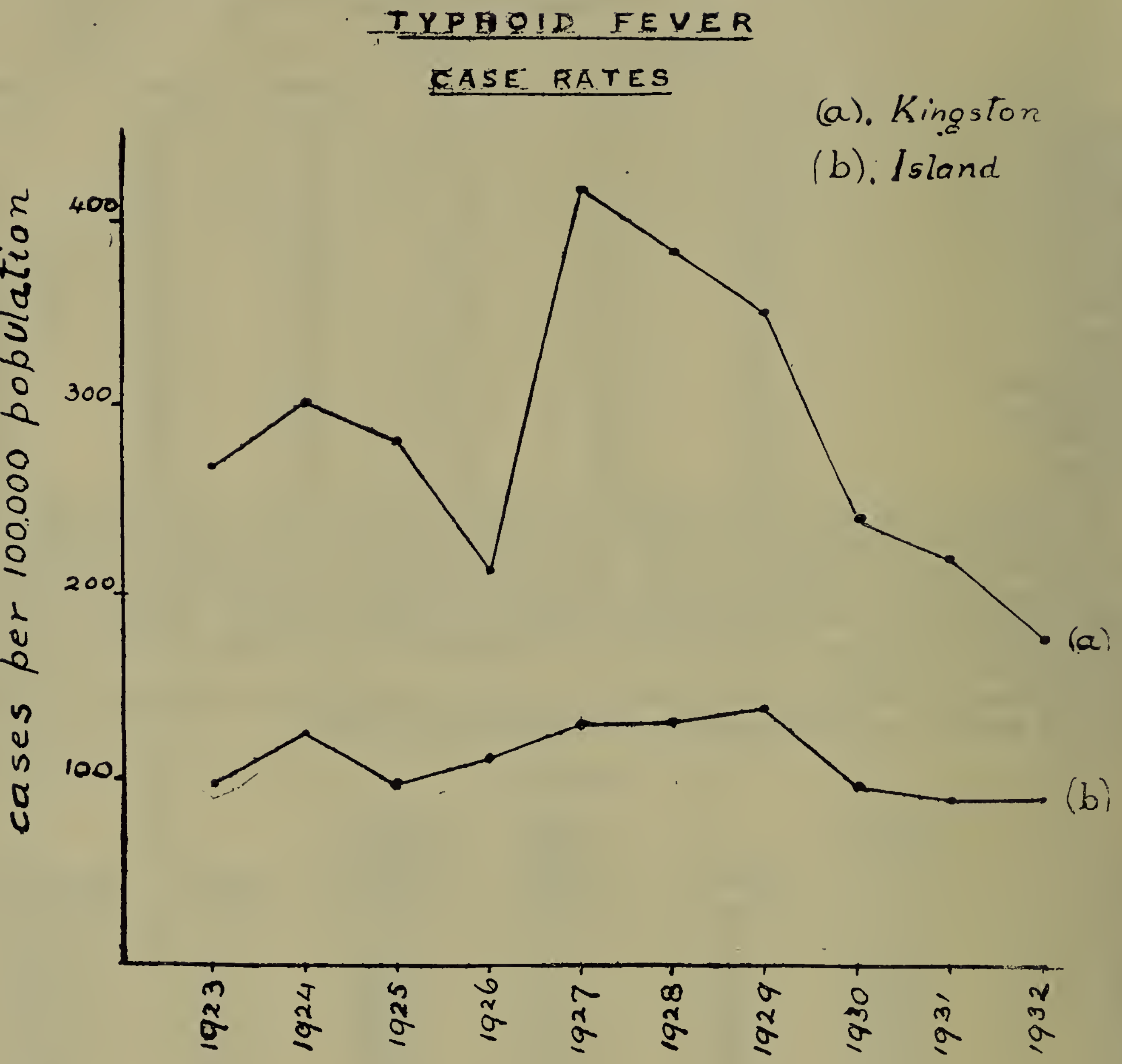
The practice of home visits to cases which cannot be hospitalised is steadily gaining ground. These visits are made by nurses, and where nurses are not available, by Sanitary Inspectors. The latter are giving valuable assistance in (a) home education with regard to prevention, (b) the examination of contacts and (c) the location of new cases.

Enteric Fevers.—Table VII shew case rates for (a) the whole Island, (b) the city of Kingston since 1923 based on a population estimated annually since the last Census in 1921.

TABLE VII.

Year.	Estimated Island Population 31st December.	Island Cases.	Island Rate per 100,000 population.	Estimated Kingston Population 30th June.	Kingston Cases.	Kingston Case Rate 100,000.
1923	894,413	872	97.5	64,150	172	268.2
1924	904,405	1,106	122.3	64,981	197	203.5
1925	916,620	850	92.7	65,533	184	280.8
1926	936,927	1,009	107.6	66,381	141	212.4
1927	953,768	1,189	124.7	67,219	280	416.5
1928	974,742	1,252	126.2	68,003	263	382.4
1929	994,419	1,325	133.3	69,044	242	350.5
1930	1,022,152	928	90.8	70,252	168	239.1
1931	1,050,667	899	85.8	71,704	156	217.4
1932	1,073,493	926	86.5	72,533	124	171.2

These rates are shewn graphically below—



The generally much higher rate for Kingston is partially accounted for by the better facilities for medical care than in rural parts and the still too great indifference of the rural population for "fever" unless accompanied by alarming symptoms.

The Island Typhoid rate continues to fall steadily. With regard to the Kingston rate it is noted that excluding the year 1927-29 with excess typhoid inclusive there has been a sharp decline of nearly 30% since 1930. The only public health measure that can be associated with this remarkable decline is the improvement in the bacteriological standard of the city water supply during this period by the more efficient application of filtration and chlorination initiated in the latter part of 1930.

It is further to be noted that the Infant Mortality rate of the city has shewn a similar marked decline during the same period, there being a general effect on the crude death rate of the city.

A total of 929 cases were notified for the Island as compared with 900 in 1931; but it is to be noted that 59 of these occurred at Amity Hall in St. Thomas during the months of October and November, the population of the district being about 400, and another localised epidemic at Sav.-la-Mar in Westmoreland accounted for 46 cases.

The evidence in the Amity Hall outbreak pointed strongly to an unprotected Spring as being the source.

A total of 810 vials of Typhoid vaccine was supplied to the Medical Officers of Health; the Medical Officers of Health, St. Mary, St. Catherine and Portland having administered 6,508, 4,502 and 1,994 doses respectively

Malaria. —Following 1931, a year of continuous rainfall with a sharp increase in Malaria in uncontrolled districts of low endemicity, there was an incidence in 1932 which continued to be above average except in the areas controlled by the Malaria Commission, where Malaria continues to decline.

Favourable results were obtained in the 8 control areas with only one temporary breakdown in one of these areas due to an experiment at economising in the use of Paris Green.

Small outbreaks of malignant Tertian Malaria were reported from Runaway Bay, Sav.-la-Mar and the **Plains of St. Elizabeth.**

The Medical Officer of Health, Trelawny, states in his Annual Report:—

> "The severe epidemic of this disease described in the report for last year has gradually subsided, but many small outbreaks of 10 to 30 cases have occurred from time to time. Most of these are relapses of chronic infections in persons who have not had adequate treatment. Records show that previous to 1931 the mortality from malaria was negligible in any year; whereas even in the present year when the epidemic may be considered past, it remains an important cause of death. Some of the deaths from 'fever,' and some recorded of children from 'convulsions' must be due to malaria. If these are credited to malaria, this disease would then take second or possibly first place in the causes of death."

The Medical Officer of Health, Portland, states:—

> "Malaria is definitely a Public Health problem in the parish, the areas most affected being Orange Bay, Hope Bay, Manchioneal and Buff Bay.......... There has definitely been a decrease in the incidence of the disease as compared with previous years, partly due to the seasons, and partly due to the control measures that have been carried out at Hope Bay and Buff Bay."

The Medical Officer of Health, St. Mary, supervises control work in Port Maria and Oracabessa and assists the Malaria Commission in Annotto Bay.

A survey of school children in the Oracabessa School in 1931 shewed that 13% had enlarged spleens and 1.7% shewed parasites in their blood. In 1932 these percentages had been reduced to 9% and 1% respectively. At Jacks River School there was a spleen reduction from 33.3% to 19.5% and parasites in blood specimens from 13.3% to 0.95% over the same period.

The Medical Officer of Health for the Sav.-la-Mar district states:—

> "Malaria has been the principal disease treated as usual, its prevalence has been kept in check by the anti-malarial measures of the Malaria Commission......... Large areas of swamp land have been reclaimed (by the Malaria Commission) in the Little London district."

The total number of cases and deaths annually in Public General Hospitals since 1929 is shewn below:

Year.		In-patients.	Deaths.	Out-patients.
1929	..	1,618	68	2,278
1930	..	1,475	42	2,957
1931	..	2,661	119	4,623
1932	..	2,273	109	5,496

In addition to the control measures in selected areas by the Malaria Commission, an increasing amount of control is being undertaken by individual local boards where malaria is an important problem. In St. James the Malaria Commission undertakes control in a selected section of Montego Bay, but the Medical Officer of Health has extended the work to several other districts of the parish as far as staff and funds will allow, and is obtaining valuable results. In Portland, Westmoreland and Trelawny, the Boards are also undertaking control work either by assisting the Malaria Commission or by extending the measures to other sections.

It is being clearly shewn that very good results can be obtained at exceedingly low cost.

The principle, laid down in the Public Health Law (18 of 1925), that the individual is responsible for controlling mosquitoes on his own property is being steadily brought into force, and valuable co-operation from land owners, large and small is reported. This will tend to lighten the burden on governmental funds as well as serve to educate the citizen in his responsibility for public health.

The chief control measures used are:—

(1) Paris Green.—This is the cheapest and most extensively used measure because of the great cost of undertaking, except in special cases, such permanent work as filling, draining, or subsoil tile drainage.

(2) Clearing of vegetation.—This is cheaply and effectively maintained for smaller streams, irrigation canals, ponds, etc.

(3) Filling where possible.—The Medical Officer of Health, Trelawny, reports that a total of about 10 acres of breeding places in Falmouth have been dumped up with streets' refuse during the past 15 months.

At Oracabessa and Montego Bay breeding places in rock holes are filled in by chips of rock obtained by sledging of the edge of holes.

(4) Ditching.—This has been very successfully applied by the Malaria Commission, and in Portland by private land owners on the recommendation of the Medical Officer of Health.

Complete details of the work of the Malaria Commission will be found in Appendix V.

Diphtheria.—The number of cases and deaths reported annually since 1928 is shewn in the following table:—

Year.	Cases.	Deaths.
1928	5	2
1929	3	2
1930	8	1
1931	14	2
1932	26	3

In 1932, 15 cases were notified in Kingston with one death. The Government Bacteriologist examined 81 throat swabs submitted, 30 of which shewed the presence of the K. L. Bacilli.

Hookworm Disease.—The Report of the Hookworm Commission will be found in Appendix II.

4. Water Supplies.

Kingston.—In addition to the constructional progress recorded from the engineering standpoint, with a view to better distribution of the present supply, improvement in quality has been well maintained. Samples taken weekly of the water supplied from the purification plants as it entered the mains shewed well maintained good bacteriological results. The standards used are those of the American Public Health Association. On this standard there were no presumptive positive samples in the water delivered to the mains, though there were a few doubtful ones.

Samples taken from distribution points in the area of supply shewed a greater proportion of "doubtfuls" than in the case of the water supplied to the mains. The reasons for this difference are being studied. There were no "positives" obtained at distribution points.

Certain difficulties arose due to odours and tastes, but the causes for these were discovered.

In addition to the bacteriological examinations being performed by the Government Bacteriologist, the Water Department is in process of establishing its own laboratory to increase the study of the water supply.

The reports of Medical Officers of Health in five parishes note major works of improvements in water supplies as follows:—

Portland.—Mechanical filters and chlorination were installed for the Port Antonio supply.

St. Catherine.—Mechanical filters and chlorination for the Linstead supply.

St. Thomas.—Over £800 was spent to construct works of improvement to two supplies for the districts of Penlyn Castle, Croton Spring, Pear Tree River, Winchester and Pleasant Hill. Repairs and improvements to the Morant Bay supply were carried out at a cost of £900.

Trelawny.—£500 was spent on improvements to the Falmouth supply. The Stewart Town and Ulster Spring stand pipe supplies were put into operation.

St. Ann.—Two new public tanks were completed in the Cave Valley area, and three additional ones are in course of construction in the Claremont area.

5. Food Supplies.

The inspection of tinned foods in grocery stores is generally well done, and improvements in the protection of other foods in such stores are continuing.

There is much to be desired by way of improvements in the methods of producing and handling bread throughout the Island, though many Medical Officers of Health report progress.

With regard to meat inspection, very few towns require that animals shall be inspected ante mortem, and outside of the chief towns there is no complete inspection of carcasses. Recently, increasing attention is being called to the existence of Tuberculosis in cattle especially, due largely to the training in meat inspection at the Kingston Slaughter House obtained by Sanitary Inspectors at the School for Sanitary Inspectors.

The Registration of Dairies is now being enforced in the parishes of Kingston, St. Andrew, Portland, St. Ann, St. James, Westmoreland, St. Elizabeth and St. Catherine, and arrangements are being made to do so in Trelawny. Marked improvements have been obtained in St. Catherine during the year.

6. Maternity and Child Welfare.

The Child Welfare Association in Kingston continued, and increased the amount of work performed in pre-natal, infant and pre-school care, by clinics and home visits. The total attendance at clinics was 20,687, and the attendance at pre-natal clinics was 2,261. The Association also distributed 1,379 tins of milk and issued 678 food tickets.

The Medical Officer of Health, St. Catherine, holds pre-natal and infant clinics and has a nurse for home visits.

Seven parishes now have School Dental Clinics as follows:—Kingston, St. Andrew, St. Mary, Portland, Trelawny, Hanover and St. James. An account of those in which the Rockefeller Foundation co-operated is given in Appendix III.

7. Educational Measures.

The Bureau of Health Education presents its Report in Appendix I.

Nearly all the Medical Officers of Health of the Island reported having given lectures on Health Topics especially in schools, and a number of these are illustrated by Magic Lantern, Motion pictures and microscope.

An important feature of the work of the various Commissions is the intensive education in the home and by public lectures on their respective problems.

A Session of the School for Sanitary Inspectors was begun in November.

8. Recommendations.

The Senior Sanitary Medical Officer recommends:—

1. The establishment of a Section of Vital Statistics for the Central Board of Health.
2. Standardisation, as far as possible, of the forms and record books used by the Local Boards of Health in connection with Health work with a view to simplifying the work in the Central Office.
3. Island uniformity of effort on certain main problems which can be effected by widespread pressure under the Public Health Law, e.g., latrine construction, mosquito control, prevention of pollution of water supplies, and milk control.
4. Building up a School Medical Service of which Dental Clinics and treatment for Hookworm Disease form the nucleus.
5. The establishment of a Mobile Tuberculosis Dispensary to aid and guide Medical Officers in the control of this disease.
6. An Island-wide programme for improved meat control by the construction of slaughter houses in important towns where these do not now exist, and by the establishment of simple inspection sheds in populous rural centres with the creation of "defined" areas around them.
7. Increased laboratory facilities.

Among the recommendations of the Medical Officers of Health are the following:—

1. Establishment of a School Medical Service, including Dental Clinics for those parishes which do not yet have them.
2. A Public Health Nursing Service.
3. Proper water supplies for Elementary Schools.
4. Extension of Malaria Control.
5. Increased Laboratory Services.
6. Provision of beds for cases of Tuberculosis.
7. Improvements to rural water supplies.
8. Model Housing plans for rural districts.
9. Improvement in methods of recording of Vital Statistics with more epidemiological study.

STATISTICAL RETURN.

—	Kingston.	St. Andrew.	St. Thomas.	Portland.	St. Mary.	St. Ann.	Trelawny.	St. James.	Hanover.	Westmoreland.	St. Elizabeth.	Manchester.	Clarendon.	St. Catherine.	Port. Royal
I. *Nuisances.*															
Complaints received	259	502	52	372	97	677	733	82	8	80	96	4	4	70	..
Notices served ..	2,458	2,457	839	785	4,861	1,118	1,285	772	1	296	1,259	2,023	4	5,153	..
Legal Proceedings taken ..	28	3	21	10	..	48	88	..	..	8	..	85	..	177	..
Legal Proceedings successful ..	25	3	18	10	..	40	88	..	..	8	..	73	..	175	..
II. *Infectious Diseases.*															
Visits of Enquiry, etc. ..	1,065	319	523	226	517	136	307	168	16	51	79	2	230	269	2
Intimations to School Boards, Teachers, etc. ..	..	..	56	12	5	14	..	5	4	4	16	4	..	..	..
Disinfection of houses or premises	501	319	47	27	47	80	42	153	13	82	46	39	17	144	..
Disinfection of clothing, bedding, etc., (Sets of) ..	333	..	43	20	13	35	..	178	..	13	7	39	17	(No record)	..
Legal Proceedings taken ..	..	..	..	..	..	..	..	..	..	..	..	..	..	(Under Sec. I)	..
Legal Proceedings successful ..	..	..	..	..	..	..	..	..	..	..	..	..	..		
III. *Dairies, etc.*															
On Register at 1.1.32	32	123	..	32	..	3	..	15	..	17	5	..	..	77	..
Registered in 1932 ..	71	89	..	..	..	..	..	..	..	1	..	..	..	1	..
Removed from Register in 1932 ..	16	6	..	1	..	..	..	1	..	..	..	..	..	10	..
Remaining on Register 31.12.32 ..	87	206	..	31	..	3	..	14	..	18	5	..	..	68	..
Inspections ..	3,770	942	10	157	..	4	32	16	..	63	53	22	..	276	..
Contraventions of Bye-Laws ..	221	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Legal Proceedings taken ..	3	..	..	..	..	..	3	..	..	..	..	..	70	(Under Sec. I)	..
Legal Proceedings successful ..	1	..	..	..	..	..	3	..	..	..	..	..	70		..
IV. *Sale of Food and Drugs Law.*															
Samples procured for analysis ..	..	12	..	..	..	..	..	..	1	..	..	..	..	117	..
Samples certified genuine ..	..	..	..	..	..	..	..	..	1	..	..	..	..	117	..
Samples certified adulterated ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Legal Proceedings taken ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Legal Proceedings successful ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
V. *Slaughter Houses.*															
No. of Public Slaughter Houses	1	1	..	1	2	1	1	..	..	..	..	..	..	1	..
No. of Private Slaughter Houses	..	..	63	3	..	38	..	12	..	18	28	6	..	14	..
No. of inspections of above ..	48	3,768	66	56	288	1,412	368	82	..	132	204	65	..	254	..
VI. *Unsound Food.*															
Inspections, No. of	15,308	..	1,215	970	8,706	713	3,480	872	112	10	1,859	3,341	1,260	8,937	4
Seizures, No. of ..	210	95	75	57	107	54	46	213	1	43	56	329	2	537	3
Legal Proceedings taken ..	..	20	..	..	..	..	..	..	..	..	..	..	..	(Under Sec. I.)	..
Legal Proceedings successful ..	..	..	..	..	..	..	..	..	..	..	..	..	..		..
VII. *Bye-Laws.*															
Inspections of—															
(a) Private premises	85,080	21,965	10,678	15,011	38,777	19,015	16,474	7,672	241	2,041	8,047	21,456	27,831	53,701	frequent
(b) Schools ..	782	444	151	75	249	258	126	45	47	132	83	67	69	274	2
(c) Markets ..	136	daily	203	346	396	744	411	274	94	231	193	290	47	881	..
Restaurants	793	90	2	89	59	..	8	62	..	25	..	36	49	102	..
Grocery Stores	4,080	1,072	947	300	1,281	1,207	1,025	351	57	440	725	409	575	3,340	3
Butchers' Shops ..	789	526	122	36	309	72	1,023	163	..	125	59	..	..	..	..
Bakeries and Bread Shops	2,611	1,268	206	286	297	591	207	120	88	276	234	332	434	845	..
Milk Shops ..	3,770	373	83	30	..	..	12	..	..	..	..	..	..	134	..
Ice Factories	8	..	12	..	2	6	..	4	..	12	..	..	..	695	..
Ice Shops ..	1,046	391	114	17	201	100	236	..	13	56	12	..		48	
Food Vendors	2,902	3,381	607	..	No record	1,462	2,515	29	4,380	413	736	1,555	3,306	8,985	3
Aerated Water Factories ..	58	..	..	..	..	..	..	15	..	..	..	2	..	..	..
Sugar Factories ..	..	..	..	..	..	..	..	..	..	..	6	..	..	..	..

—	Kingston.	St. Andrew.	St. Thomas	Portland.	St. Mary.	St. Ann.	Trelawny.	St. James.	Hanover.	Westmoreland.	St. Elizabeth.	Manchester.	Clarendon.	St. Catherine.	Port Royal.
VII.—*Bye-Laws, contd.*															
Cold Storage Establishments ..	6	..	4	..	..	..	..	..	..	..	..	..	..	..	..
Breweries ..	8	..	..	..	..	..	..	..	..	..	..	2	..	..	..
Coconut Oil Factories ..	36	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dyewood Factories	..	..	..	..	..	..	..	..	..	..	9	..	..	..	..
Confectionery Factories ..	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Soap and Leather Factories ..	91	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Liquor Factories ..	26	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Biscuit Factories ..	36	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lodging Houses and Hotels ..	528	66	33	65	31	16	39	23	7	27	132	29	49	102	..
The Keeping of Animals ..	413	..	221	82	..	292	..	9	..	..	..	108	..	No record	..
Offensive Trades ..	151	..	..	2	6	78	..	18	..	5	17	6	..		..
Other;Shops and Trades ..	4,172	..	60	192	..	158	..	..	135	25	160	314	..	..	..
(d) Water Supplies	..	..	226	159	560	387	329	62	..	609	418	3	178	199	..
(e) Drainage ..	..	..	155	90	..	454	..	29	14	49	200	..	..	..	..
(f) Mosquito Breeding—															
No. of places Anopheline larvae found ..	3	..	78	63	76	30	112	10	11	57	64	..	..	3	..
No. of places other Mosquito larvae found ..	825	966	246	96	215	5	120	21	72	14	104	317	4	269	..
No. of places treated ..	..	966	324	63	156	35	112	26	25	63	20	316	4	298	..

Condemned Food Stuffs.

Fish—	
Fresh	½ bucket and 457½ lbs.
Tinned	892 tins
Codfish	37,067 lbs.
Cod Roes	4 tins
Haddock	6½ tins
Herrings	570 tins, 18¾ brls. and 335 lbs.
Sardines	426 tins and 169 lbs.
Mackerels	204 lbs.
Shad	1 brl. and ½ lb.
Salmon	215 tins
Shrimps	5 tins
Sardines in Tomato	12 tins
Herrings in Tomato	2 tins
Other Canned Goods	1,467 tins
Bread Stuffs, etc.—	
Bread	27 loaves and 164¼ lbs.
Flour	119½ lbs.
Cornmeal	20 bags and 459 lbs.
Crackers	11½ lbs.
Flour Cakes	48
Cassava Cakes	4
Buns	12
Oatmeal	8 tins
Shredded Oats	3 packets
Milk—	
Cow's	18 qts. and ½ pt.
Condensed	236 cases and 377 tins
Evaporated	28 cases
Butter and Margarine	3 tins and 7½ lbs.
Crisco	3 tins
Sugar	5 galls. and 7 tins
Pickles	2 bottles
Sauce	7 bottles
Irish Potatoes	10 bags
Cheese	16 lbs.
Rice	28 bags and 16 lbs.
Cocoanut Oil	3 qts.
Chocolates	54 cartons
Milk Food	1 tin

Meat, etc.—	
Beef	37 carcasses, 117 partial and 2,554¾ lbs.
Beef, Livers and other abdominal organs	15,740¼ lbs.
Beef, corned	8¼ lbs.
Beef, corned (in tins)	3 tins
Beef, Cow's Foot	2
Beef, Salt	2 brls. and 190 lbs.
Mutton	172½ lbs.
Mutton, Livers and other abdominal organs	24 lbs.
Pork	24 carcasses, 67 partial and 162½ lbs.
Pork, corned	158¼ lbs.
" Livers, and other abdominal organs	343 lbs.
" Other parts	5 brls. 4 lbs. and 3 ozs.
Pork and Beans	65 tins
Sausages	33 tins and 1 box
Tinned Meat	115 tins
Ox Tongue	28 tins and 3 brls.
Ham	3 tins
Turkey	2
Duck	12
Fowls	6
Fruits and Vegetables—	
Grapes	13 tins
Tomatoes	26 tins
Green Peas	14 tins
String Beans	3 tins
Fruits (preserved and otherwise)	278 tins and 3 doz.
Cherries	3 tins
Olives	1 bottle
Plums	1 tin
Pears	23 tins
Apricots	26 tins
Pineapples	3 tins
Peaches	11 tins
Strawberries	1 tin
Sweet Corn	19 tins
Canned Vegetables	22 tins
Bananas (ripe)	2 hands
Yams	14½ lbs.
Soup	86 tins
Postum	5 tins
Sweets	2 bottles
Jams (Plum, etc.)	84 lbs. and 26 tins
Marmalade	12 lbs. and 2 tins
Jelly Powder	6 packs
Syrup	8 qts.
Aerated Water	3 pts.
Wine	2 pts.
Stout	16 bottles
Beer	2 bottles

J. M. Hall,
Acting Senior Sanitary Medical Officer.

IV.—PORT HEALTH WORK.

The year 1932 has been of a routine nature and no serious epidemics have been reported. The Regulations of the Board have been strictly carried out during the year and the Island has been kept free from all quarantinable diseases. One vessel arrived with a case of Smallpox on board, in the convalescent stage, but as all the passengers and crew had been successfully vaccinated she presented no danger.

The Plague situation is in practically the same condition as last year. While none of the plague infected countries have been able to eradicate the disease, no other countries have become infected. There is no doubt that the march of plague has been definitely arrested. It is now, however, that greater vigilance than ever is necessary.

The Smallpox Regulations have been carefully carried out. A large number of Jamaicans returned from Cuba and those that were not considered immune were vaccinated.

Yellow Fever still persists in the northern coast of Brazil and as we have one vessel, a regular trader to and from there, every precaution is taken with regard to her and she undergoes fumigation for both rats and mosquitoes on arrival here.

The medical examinations at Port Royal and the Outports have been carefully carried out and in each case as expeditiously as possible.

The Launch at Port Royal is in good working order and is of great assistance to the Health Officer in enabling him to carry out his duties expeditiously.

A service of Seaplanes has arrived regularly during the year and although their base at Harbour Head is some distance away, the District Medical Officer for Kingston has carried out the work with despatch.

The Quarantine Station has not been occupied during the year. The buildings are in good condition and persons for detention can be received at any time.

During the latter part of the year, the Chairman, Dr. B. M. Wilson, M.D., ChB., D.P.H., was invalided from the Service. Dr. Wilson took great interest in the Service and in his retirement, the Board suffered a great loss.

Captain List and the Secretary were on leave during the year.

During the year 1,136 vessels were granted pratique at Port Royal and 250 Seaplanes at Harbour Head.

Twenty vessels were fumigated during the year and £89 5s. in fees was earned and duly lodged in the Treasury.

Charles Don,
Secretary, Quarantine Board.

V.—HOSPITALS AND DISPENSARIES.

The following is a list of the Hospitals and Institutions of the Medical Department:—

	No. of Beds.
Public Hospital, Kingston	380
Maternity Hospital, Kingston	30
Public Lunatic Asylum, Kingston	1,850
Public General Hospital, Morant Bay	30
" " " Hordley	40
" " " Port Antonio	55
" " " Buff Bay	50
" " " Annotto Bay	60
" " " Port Maria	65
" " " St. Ann's Bay	40
" " " Cave Valley	12
" " " Falmouth	25
" " " Ulster Spring	6
" " " St. James's	70
" " " Lucea	30
" " " Sav.-la-Mar	66
" " " Black River	70
" " " Mandeville	35
" " " Chapelton	33
" " " Lionel Town	50
" " " Spanish Town	70
" " " Linstead	60
Lepers' Home, Spanish Town	120

The work of the Public General Hospitals continued to increase. This was most manifest in the case of the Kingston Hospital. In the District Hospitals 16,358 patients were treated in the wards with 942 deaths, while the attendances at the Out-patients Departments numbered 49,216. The surgical work consisted of 4,204 major and 2,326 minor operations.

Kingston Hospital.—The Out-patient Department could no longer satisfactorily accommodate the cases attending this Institution which numbered 154,999 in 1932. The building which was formerly the Island Medical Office, was adapted for temporary use until such time as a new Out-patient Department is constructed. 6,544 In-patients were treated with 661 deaths. 2,892 operations were performed on In-patients. The number of minor operations in the Outpatient Department was 3,253.

In the X-Ray Department 1,850 patients attended, compared with 1,352 in 1931.

The establishment of five Dispensaries which are visited daily by the District Medical Officers, and of eleven Out-stations where District Medical Officers attended at regular intervals, has proved of great value in extending medical aid to poor persons, not on the Pauper Roll, who live at some distance from a hospital, which they would attend as out-patients. It is the policy of the Department gradually to increase these facilities in locations where they are required.

J. A. Henderson,
Acting Superintending Medical Officer.

(A) *Report of the Medical Superintendent, Kingston Public Hospital.*

Tables 1 and 2 show the numbers treated during the year, with results.

The total death rate from all causes for the year was 661, viz., 390 males and 271 females.

Table 3 shows the number of deaths occurring within 12 and 72 hours after admission.

Table 4 gives the number of Medical and Surgical cases treated for the year with results.

Table 5 shows in detail the operative work performed.

Table 6 shows the work done at the Venereal Clinic. There is an increase in numbers compared with 1931.

Table 7 has been drawn up for the purpose of perusing at a glance the yearly increase of the work from 1928 to 1932.

The overcrowding and congestion is still an urgent problem and will continue to be until the scheme that is being considered for acquiring land and erecting new wards, etc., has been put into operation.

Hunt and Ross Wards were opened in May and accommodate 46 patients.

The Medical Staff have given the usual course of lectures to the Nursing Staff and 25 Nurses were successful in their final examination and obtained Certificates. Visits were made by the Official Board of Visitors.

On behalf of the In-patients, I wish to thank those who have sent books, magazines, etc.

The work of the Institution has been carried out in a satisfactory manner through the loyal assistance and co-operation of the entire staff.

TABLE 1.

	Males.	Females.	Total.
Patients remaining in hospital 1.1.32	197	140	337
Patients admitted during the year 1932	3,487	2,745	6,232
Total patients treated	3,684	2,885	6,569
Of these were cured	1,964	1,680	3,644
Of these were relieved	950	673	1,623
Of these were not relieved	150	102	252
Of these died	390	271	661
Remaining in hospital, 31.12.32	230	159	389
Totals	3,684	2,885	6,569

TABLE 2.

Daily average number of beds occupied by male patients	220.75
Daily average number of beds occupied by female patients	177.62
Average stay in days of those who died, males	8.12
Average stay in days of those who died, females	8.05
Average stay in days of males discharged	24.7
Average stay in days of females discharged	20.3
Average stay in days of males remaining at end of year	30.6
Average stay in days of females remaining at end of year	27.
Longest stay of any one patient in hospital	366 days.

TABLE 3.

Patients who died within the following hours after admission:—

12		24		48		72		Total.	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
75	49	66	40	43	31	29	22	213	142

TABLE 4.

Diseases and deaths in the Kingston Public Hospital during 1932:—

	Cases.	Deaths.
.—*Epidemic, Endemic and Infectious Diseases*—		
Enteric Fever	181	51
Malaria Fever	230	3
Measles	36	..
Whooping Cough	3	..
Diphtheria	26	3
Influenza—(a) with pneumonic complications	3	3
(b) without pneumonic complications	66	..
Miliary Fever	1	1
Mumps	1	
Dysentery—(a) Amoebic	17	3
(b) other or unspecified	6	3
Leprosy	1	..
Erysipelas	2	1
Acute Poliomyelitis	2	..
Meningococcal meningitis	2	2
Yaws	6	..
Tetanus	27	13
Tuberculosis—Respiratory system	62	23
Central Nervous system	3	3
Intestines and peritoneum	18	6
Vertebral column	12	..
Joints	16	..
Other Organs—		
Skin and subcutaneous tissue	6	..
Bones (Vertebral column excepted)	14	..
Lymphatic system	12	..
Other sites	6	2
Syphilis	528	34
Gonococcal infection—		
(a) Gonococcal infection (ophthalmic excepted)	172	..
(b) Gonorrhoeal or purulent ophthalmia	11	..
Septicæmia	13	12

	Cases.	Deaths.
II. *General Diseases*—		
Cancer, malignant disease: Buccal cavity	1	..
Pharynx, œsophagus, stomach, liver and annexa	15	5
Peritoneum, intestines and rectum	3	2
Female genital organs	24	1
Breast	15	..
Other or unspecified organs	27	5
Tumours not returned as malignant (brain and female genital organs excepted)	81	1
Rheumatic Fever	3	..
Chronic Rheumatism	9	..
Pellagra	1	..
Diabetes	32	7
Anæmia—(a) Pernicious anæmia	14	..
(b) Other anæmias and chlorosis	2	..
Diseases of the Thyroid gland	6	..
Thymus gland	1	1
Spleen	2	1
Alcoholism (acute or chronic)	3	...
Chronic poisoning (mineral substances)	2	1
" " (organic substances)	2	...
Toxaemia	18	17
III.—*Diseases of the Nervous System and Sense Organs*—		
Encephalitis Cerebral abscess	1	1
Meningitis	2	2
Tabes Dorsalis	7	1
Other diseases of the spinal cord	1	1
Cerebral hæmorrhage, apoplexy, etc.—		
1. Cerebral hæmorrhage	11	10
2. Apoplexy (lesion unstated)	5	2
3. Cerebral thrombosis	3	—
Paralysis of unstated origin—		
Hemiplegia	20	1
Other forms of paralysis	8	2
Other forms of insanity	6	..
Epilepsy	6	...
Convulsions (non-puerperal)	15	4
Hysteria and Neuritis—Hysteria	11	—
Neuritis	15	—
Other diseases of the Nervous system—		
Cerebral tumour	3	1
Disseminated sclerosis	1	..
Other diseases	23	13
Diseases of the eye and annexa	205	—
Diseases of the ear and of the mastoid sinus—		
Diseases of the mastoid sinus	7	—
Diseases of the ear	17	—
IV.—*Diseases of the Circulatory System*—		
Heart Diseases—Pericarditis	2	1
Acute endocarditis and myocarditis:		
Acute endocarditis	11	3
Acute myocarditis	47	15
Other diseases of the heart		
Aortic valve disease	5	2
Mitral valve disease	8	2
Aortic and mitral valve disease	14	2
Dilation of heart (cause unspecified)	2	2
Heart disease (undefined)	68	25
Diseases of the arteries—Aneurysm	6	3
Other diseases of the arteries	3	2
Embolism and thrombosis (not cerebral)	6	5
Diseases of the veins (varix, hæmorrhoids, phlebitis, etc.)	45	—
Diseases of the lympathic system	69	—
Haemorrhage without stated cause	2	2
Other diseases of the circulatory system	1	—

	Cases.	Deaths.
V.—*Diseases of the Respiratory System*—		
Diseases of the Nasal Fossae and annexa—		
Diseases of the nose	3	..
Diseases of the accessory nasal sinuses	33	..
Diseases of the Larynx—Laryngitis	3	1
Bronchitis—Acute Bronchitis	24	..
Chronic Bronchitis	6	..
Bronchitis (not specified)	71	..
Pneumonia (all forms):		
Broncho pneumonia	91	36
Pneumonia Lobar	113	39
Pneumonia unspecified	187	53
Pleurisy—Empyema	3	..
Other pleurisy	68	2
Congestion and hæmorrhagic infarct of lung	1	1
Asthma	6	
Other diseases of the respiratory system	11	..
VI.—*Diseases of the Digestive System*—		
Diseases of the teeth and gums	28	1
Ludwig's angina	1	..
Other diseases	10	1
Diseases of the pharynx and tonsils—		
Tonsillitis, adenoid vegetations	38	..
Other diseases	4	..
Ulcer of the stomach or duodenum—		
Ulcer of the stomach—	36	10
Ulcer of the duodenum	11	4
Other diseases of the stomach—		
Inflammation of the stomach	23	..
Other diseases of the stomach	22	..
Diarrhoea and Enteritis:		
Ulceration of the intestines	4	..
Colitis	23	3
Other diseases	126	32
Ankylostomiasis	5	..
Diseases due to other intestinal parasites	20	1
Appendicitis	465	12
Hernia	137	6
Intestinal obstruction	18	12
Other diseases of the intestines—		
Intestinal stasis	46	..
Other diseases	33	..
Cirrhosis of liver—Alcoholic	5	3
Non-alcoholic	42	5
Biliary Calculi	2	..
Other diseases of the liver	43	4
Diseases of the Pancreas	2	1
Peritonitis without stated cause	23	16
VII.—*Non-Venereal Diseases of the Genito-urinary system and annexa*—		
Acute nephritis (including unspecified under 10 years of age)	31	11
Chronic nephritis (including unspecified over 10 years of age)	75	33
Other diseases of the kidney and annexa	7	..
Calculi of the urinary passages	4	..
Diseases of the bladder—		
Cystitis	31	3
Other diseases of the bladder	14	2
Diseases of the urethra, urinary abscess, etc.—		
Stricture of the urethra	43	4
Other diseases of the urethra, etc.	36	..
Diseases of the prostate	55	..
Non-venereal diseases of the male genital organs	216	1
Cysts and other tumours of the ovary not returned as malignant	37	1
Salpingitis and pelvic abscess in females—		
Salpingitis	231	..
Pelvic abscess	30	..
Tumours of the uterus not returned as malignant	142	2
Non-puerperal uterine hæmorrhage	22	..
Other diseases of the female genital organs—		
Other diseases of the uterus	117	..
Diseases of other female genital organs not included under headings	39	..
Non-puerperal diseases of the breast	7	..

	Cases.	Deaths
VIII.—*The Puerperal State*—		
Accidents of pregnancy—Abortion	60	..
Ectopic gestation	10	..
Other accidents of pregnancy	26	..
Puerperal hæmorrhage	7	..
Puerperal sepsis	2	2
Puerperal albuminuria and convulsions	2	2
Puerperal diseases of the breast	2	..
IX.—*Diseases of the Skin and Cellular Tissue*—		
Gangrene	13	..
Carbuncle, boil	16	1
Cellulitis, acute boil—Cellulitis	38	2
Acute boil	64	..
Other diseases of the skin and annexa—		
Ulcer, bedsore	162	..
Eczema	3	..
Other diseases	18	..
X.—*Diseases of the bones and organs of locomotion*—		
Diseases of the bones—Acute infective osteo-myelitis and periostitis	49	..
Other diseases of the bones	10	..
Diseases of the joints	65	..
Amputations	30	..
Other diseases of the organs of locomotion	20	1
XI.—*Congenital Malformations*	12	1
XII.—*Diseases of early Infancy*—		
Congenital debility	11	9
Inanition	7	6
XIII.—*Diseases of Old Age*—		
Senile dementia	2	..
Other forms of senile decay	1	..
Acute accidental poisoning (not by gas)	1	1
Accidental burns	37	..
By other forms of crushing (vehicles, etc.)	121	17
Injury by electricity (lightning excepted)	3	..
Wounds—Bullet	9	..
Stab	20	..
Other wounds	73	..
Fractures	181	1
Fevers, undefined	90	..
Unspecified diseases	53	..
Syncope	1	1
Coma	1	1

TABLE 5.

	Cases.
I. Operations upon Female Genital Organs—	
Salpingectomy	177
Draining Pyosalpinx	24
Oophorectomy	51
Ovariotomy	4
Ovarian Cysts	15
Salpingo-oophorectomy	71
Broad Ligament cysts	19
Myomectomy	10
Sub-total Hysterectomy	82
Total Hysterectomy	3
Caesarian Section	1
Uterine Suspension	5
Curettage	101
Dilation of cervix	17
Extra uterine gestation	10
Repair of vagina	1
Excision of hymen	1
Excision of labial growths	1
Haematocolpos	1
Induction of abortion	1
Pernicorrhaphy	9
Draining pelvic abscess	8
Cervical polypus	1

	Cases.
II. Operations on Herniae—	
Radical cure—Inguinal	116
Femoral	3
Strangulated hernia	9
Obstructed hernia	4
Umbilical hernia	1
Ventral hernia	5
III. Operations for Appendicitis—	
Appendicectomy	438
Appendix abscess	27
IV. Operations upon the stomach and intestines—	
Perforation of gastric ulcer	2
Perforation of duodenal ulcer	1
Colostomy	1
Intestinal obstruction	4
Laparotomy	27
Gastro-enterostomy	4
Intussusception	2
Laparotomy for tubercular peritonitis	13
Lateral anastomosis	2
V. Operations on the bladder—	
Supra pubic cystotomy	15
Cystoscopy	2
Excision of malignant growth	1
Vesical calculis	2
VI. Operations upon the urethra and penis—	
Dilating urethral stricture	46
Circumcisions	150
Amputation of penis	3
Reduction of para phymosis	3
VII. Operations on the scrotum and testicle—	
Radical cure for hydrocele	20
Orchidectomy	9
VIII. Operations on the Anus and Rectum—	
Anal fistulae	9
Hæmornoidectomy	27
Dilating rectal stricture	10
IX. Amputations	30
X. Operations upon the ear—	
Radical cure for mastoid	4
Conservative operation for mastoid	3
XI. Operations on the nose, etc.—	
Removal of adenoids	340
Tonsillectomy	528
Nasal polyp.	17
XII. Tracheotomy	2
XIII. Operations on the Thorax—	
Amputation of breast for malignancy	7
Adenoma of breast	1
Empyema	7
XIV. Operations on Tendons—	
Suturing tendons	4
XV. Operations on Antrum and frontal sinus	33
XVI. Ophthalmic operations—	
Extraction of cataract	31
Needling cataract	58
Enucleation of eyeball	32
Iridectomy	1
Meibomian cysts	43
Pterygium	34
Lachrymal apparatus	9
XVII. Operations on affections of bones—	
Osteomyelitis	22
Sequestrotomy	8
XVIII. Dislocations	1
XIX. Fractures of bones—	
Plating femur	1
Wiring fractures	8
Depressed fracture of frontal bone	2
Depressed fracture of molar bone	1
XX. Excision of glands—	
Cervical	2
Axillary	2
Inguinal	29

		Cases.
XXI.	Operations upon the Thyroid gland	4
XXII.	Operations upon the Liver and Gall Bladder—	
	Laparotomy for ruptured liver	1
	Draining gall bladder	2
XXIII.	Incision of Abscess	78
	Suturing wounds	9
	Removal of foreign bodies (bullets, needles, etc.)	54
	Examinations	52
	Scraping ulcers	12
	Dental extractions	7
	Excision of ganglion	6
	Excision of toe nail	63
	Excision of lipoma	5
	Excision of keloid	4
	Excision of epulis	4
	Breaking down adhesions	13
	Skin graft	4
	Excision of tubercular glands	3
	Excision of Bursae	2
	Excision of Carbuncle	9
	Amputation of supernumerary digits	3
	Sebaceous Cysts	4
	Operation for Hare lip	2
	Plastic operation for contractures of arm	1
	Bronchoscopy	1
	Sigmoidoscopy	1
	Trephining for cerebral compression	1
	Excision of fibroma	6
	Cauterisation of warts, sinuses, etc.	6
	Closing pneumo-thorax	1

TABLE 6.—Return of Venereal Clinic, 1932.

No. of Salvarsan Injections.	No. of Patients treated with Salvarsan.	No. of Patients treated for Venereal Disease.	No. of Out-patients dressed and irrigated.		No. of Operations performed.	No. of Prescriptions and Lotions, etc., dispensed.	
			Males.	Females.		Males.	Females.
16,873 No. of Gonococcal Vaccines 601 No. of Bismuth et Sodii. Tart. 100	7,435	32,105	11,829	1,742	357	7,356	3,433

TABLE 7.

Year.	Admissions with No. of Patients remaining at end of year.	Surgical Operations.	Motor Car Cases.	Minor Operations in O. P. Dept.	Out-patients including Eye, Ear, Nose and Throat Clinics.	Prescriptions including Constabulary.	Radiograms taken
1928 ..	5,617	1,892	396	3,123	70,597	38,054	..
1929 ..	5,534	2,150	713	2,716	108,860	52,605	777
1930 ..	5,770	2,556	595	3,096	128,105	58,947	1,074
1931 ..	6,005	2,707	623	3,298	132,838	63,061	2,165
1932 ..	6,569	2,892	544	3,253	154,999	115,128	3,134

A. S. WESTMORLAND,
Medical Superintendent.
Public Hospital, Kingston,

Return showing the work done at the Venereal Disease Clinic at the Public Hospital, Kingston, during the year 1932.

No. of Salvarsan Injections given.	No. of Bismuth et Sodii. Tart. Injections given.	No of Gonococcic Vaccines given.	No. of Individuals treated with Salvarsan.	No. of Treatments given for Venereal Diseases.	No. of Admissions to V. D. Wards.		No. of Discharges from V. D. Wards.		No. of Cases dressed and irrigated.		No. of Operations performed.	No. of Prescriptions Lotions, etc., dispensed.	
					Males.	Females.	Males.	Females.	Males.	Females.		Wards	O.Ps.
16,873	100	601	7,435	32,105	480	305	459	245	11,829	1,742	357	7,356	3,433

A. S. **Westmorland,**
Medical Superintendent,
Public Hospital, Kingston.

Statistical Table of work performed at the Dental Clinic attached to the Public Hospital, Kingston.

No. of Patients attended	6,149
No. of Extractions	7,735
No. of Mouth Washes given	153
No. of Treatments of Teeth	27
No. of Minor Operations	8
No. of Cleanings	1
Removal Necrosed process	17

S. C. **DePass.**
Surgeon Dentist.

(B) *Report of the Visiting Surgeon, Jubilee Maternity Hospital.*

The number of patients admitted was 1,222 as against 1,384 of the previous year. 1,101 were resident in Kingston, 93 in St. Andrew and 28 in the other parishes of the Colony. There were 11 adult deaths.

The number of infants born was 1,168; of these 629 were males and 539 females; 77 were still-born, 48 of these being macerated; 59 were premature births and 38 died. There were 16 cases of twins and 1 of triplets.

16 pupil nurses were admitted for training; 2 resigned owing to ill-health, 12 were awarded certificates and 2 failed to satisfy the Board of Examiners.

I am to invite attention to the enormous incidence of albuminuria, which appears to be increasing. Out of an admission of 1,384 patients in 1931 you will observe there were 407 cases and during the year under review 441 out of 1,222 admitted. I am of opinion that this is due largely to want of pre-natal education and care.

It should be mentioned that the necessity to reduce the booking of patients from 100 to 80 per month accounts largely for the decrease in admissions during the year. Depression played a part in this connection also, I have reason to believe.

During the year several of those who died were admitted *in extremis*, when medical aid was of no avail, resulting in an increased death rate which is deplored under such circumstances.

The Medical Committee of recent date, among other recommendations, favoured the establishment of a pre-natal clinic here. The only remark one may be permitted to make is that the addition of such a beneficient institution would be a means of educating expectant mothers, caring for them and consequently reducing mortality.

I record appreciation of the visit on Christmas Day of His Excellency the Governor, Lady Slater and Mrs. Henderson, and am grateful to Lady Slater for having kindly distributed the gifts to the patients, and to the Acting Superintending Medical Officer and Mrs. Henderson for assisting at the Nurses' dinner.

On behalf of the staff I beg to thank Miss L. McCarthy for decorations and Christmas Crackers which she was so good to send, also Mrs. Orrett for babies' clothes which will be very helpful to the poorer patients.

Diseases and Complications affecting the Mother.

Abscess of breast	3
Abscess of thigh	1
Adherent Placenta	1
Albuminuria	441
Contracted Pelvis	1
Chicken Pox	1
Fever	9
Hæmorrhage, Accidental	6
" Post Partum	36
Inertia	3
Hydramnios	1
Miscarriage	29
Measles	1
Nephritis	3
Placenta Prævia	4
Puerperal Convulsions	18
Prolapse of Cord	3
Tumour	1
Typhoid	2
Vomiting, Pernicious	3

Diseases and Deformities affecting the Infant.

Ascites	1
Club Foot	3
Convulsions	4
Extra fingers	18
Haemorrhagic Diathesis	2
Ophthalmia	10
Meningo-Encaphalocele	1

Synopsis of Cases.

Presentations—	
Breech	20
Face	2
Footling	17
Transverse	4
Unreduced Occipito Posterior	3
Vertex	1,122
Operations—	
Application of Forceps	13
Craniotomy	3
Currettage	10
Ruptured Perinaeum	75
Venesection	5
Version	4

E. V. W. Mellad,
Visiting Surgeon, Jubilee Maternity Hospital.

(C) *Report of the Medical Superintendent Lunatic Asylum.*

On December 31st, 1932, there were 1,856 patients in the Hospital, 905 males and 951 females, as compared with 1,770 on December 31st, 1931, showing an increase of 86 during the year. The daily average number of patients for 1931 was 1,766 whereas in 1932 this rose to 1,817, an increase of 51. The total number treated during 1932 including one birth, was 2,326.

During the year, inclusive of 3 captures and 7 returned from the Public General Hospital after surgical treatment, 556 patients were admitted, 297 of these being males and 259 females. Ten patients were sent to the Public General Hospital of which number seven returned and three died, the cause of death being Acute Intestinal Obstruction. Three patients escaped, but were recaptured. There was one birth.

The main causes of insanity have been found to be Heredity taint, Syphilis, Consanguinity of parents, Exhaustion consequent on poor nourishment, unhealthy home surroundings and loss of employment due to depression of industry. There has been a marked increase in the number of cases suffering from Dementia Paralytica and other forms of Neuro-Syphilis.

The number of inmates discharged was 284, 166 males and 118 females, the discharged coming under the following headings:—

Recovered	147
Relieved	117
Not improved	7
Escaped	3
Sent to Public General Hospital for special surgical treatment	10
	284

The percentage of recoveries calculated on the number of actual admissions is 26.92.

The total number of deaths was 186. Males 102, females 83 and one infant—a decrease of 75 as compared with the death rate for 1931.

The percentage of deaths calculated on the daily average number resident is 10.23. The principal cause of death was—among males, Tuberculosis and Dementia Paralytica, and among females, Pulmonary Tuberculosis and Cardio-Vascular Disorders. Several of both sexes who were admitted in a state of exhaustion owing to poor nourishment, died in consequence.

Before proceeding with this report it must be stated that the Jamaica Mental Hospital is still overcrowded as the following figures show—

Daily average number of patients	1926—1,593
“ “ “ “	1927—1,577
“ “ “ “	1928—1,583
“ “ “ “	1929—1,640
“ “ “ “	1930—1,712
“ “ “ “	1931—1,766
“ “ “ “	1932—1,817

The foregoing reveals that the needed accommodation in the Hospital can be estimated as being approximately 40 beds per annum and that if the Lunacy Rate increases in proportion to the increase in population, further accommodation will have to be provided. At the end of 1926, it was realized that the Mental Hospital was overcrowded by approximately 250 inmates and in consequence of reports made, the sleeping accommodation has since that year been increased by 320 beds, these being divided between Male and Female Divisions. In view of the foregoing it is quite obvious that the Hospital being then overcrowded and the daily average number of patients having increased by 224 during the past six years, and that accommodation for only 320 patients has been added, overcrowding still exists.

In connection with this matter, it must be pointed out that it is not only a matter of floor space, but (a) latrine accommodation, and (b) shortage of staff, male and female, both divisions being dangerously inadequate in this respect.

With regard to this question of overcrowding, it must be mentioned that the general construction of the Hospital is bad, there being too many single rooms and it is suggested herein that at least four ranges of single rooms in the Female Division and two in the Male Division should be converted into open wards. The expense would not be great as compared with existing new wards. If such a programme is carried out, the night staff would have to be increased, but as an offset a few of the better type unemployed would find work.

In as far as the lunacy rate for the whole Colony is concerned, I have found, with the assistance of the Registrar General, that it is approximately 1.5 per 1,000. Such a rate can be considered as being low.

I am glad to report that the incidence of dysentery and diseases of the Enteric group has decreased, and further, that the death rate for such conditions has been low. There has been no incidence of pellagra within the Hospital but some cases, obviously relapses, have occurred. In such cases, ½lb. fresh tomatoes daily has been found beneficial.

Several patients, especially in the Female Division, have been injured by others especially by biting, which appears to be a prevalent form of attack. One female patient lost an eye owing to accidentally falling and striking the eye with a piece of stick. Full investigation into all these cases is made.

New Works, Repairs and Sanitation.

Male Division—The re-conditioning of the old Private Patients' Ward has been completed, giving increased accommodation of 30 beds. The old cart shed in the main yard has been reconstructed. The tailor's shop has been improved in respect of lighting and ventilation and better accommodation for the carpenters has been arranged. The usual necessary repairs consequent on damage done by patients have received attention and a good deal of repainting especially of ironwork has been carried out. Three ancient and obsolete latrines remain to be re-conditioned.

Female Division.—No new works of major importance have been put in hand, but the verandahs of two wards have been re-roofed. The kitchen has been altered in respect of ventilation. Latines in "E" ward have been re-conditioned, also one near the kitchen. Four remain to be modernized. Two wards have been repainted.

It is hoped that in the near future the roof of the female kitchen will receive attention. At present it leaks so much when rain is falling that great difficulty is experienced when meals have to be prepared. In several other parts of the Hospital the roofs are in a rotten state, especially the female dining hall, and unless something is done towards repair a large sum of money will have to be spent on entire new roofing.

The existing Stores have been fitted with roof ventilation, but it must again be urged that the accommodation in regard to offices and stores is absolutely inadequate, also insanitary and wasteful, owing to the ravages of rats and for other reasons.

It must again be reported that that ancient building at present occupied by the Fourth Assistant Medical Officer and condemned in 1918, still exists and that a new officer's quarters is urgently required to take the place of this eyesore.

The present hall where Church Services have to be held and which is also used for entertainments for patients is becoming more unsafe, and, unless something is done either to repair it or to erect a new building there will be no place to which patients can go for religious purposes or secular diversion.

The water supply has, on the whole, been adequate, but in all Divisions the pressure is poor. In the event of fire, this lack of pressure would result in heavy loss.

Farm and Grounds.—Ward gardens are still popular and several patients are occupied in these. Three Chief Charge Attendants are to be mentioned for their efforts in this respect—Lord, Wiggan and Tummings. A fair supply of ochro was derived from the sewerage farm and it is hoped this will prove more prolific in 1933. Poultry farming has improved and the supply of eggs and edible birds has increased. Sheep have done well and lambs are plentiful.

The gross value derived from farm operations which consists of live and slaughtered sheep, sale of grass, value of poultry, eggs, and vegetables supplied for dietary purposes, manure and divi-divi amount to £227 1s. 10d. Of this sum £77 7s. 11d. in cash goes to General Revenue, £125 14s. represents value of farm products used for dietary purposes (thereby effecting a corresponding reduction in the cost of commodities purchased and charged to this Item), and the remainder, viz.: £23 19s. 11d. to Patients' Fund in accordance with regulations governing same.

The following sums are also collected—

	£	s.	d.
(a) For washing done for Public General Hospital, Kingston . .	£104	2	4
(b) For making straw brooms for Public General Hospital, Kingston	1	2	6
Total . .	£105	4	10

This amount was credited thus:—

	£	s.	d.
To Miscellaneous Revenue	£47	6	7
To Patients' Fund	57	18	3
	£105	4	10

Approximately 500 male patients are employed in workshops, gardens, also in useful labour in general, approximately 450 females occupy themselves in the laundry, sewing room and by making themselves useful in domestic pursuits. Occupational therapy is encouraged and it is due to the endeavours of the Matron, the Chief Attendant and the Chief Artisan and his staff that the Hospital does not have to employ outside labour as was formerly the practice in respect of clothing, bedding, furniture and other commodities.

It is hoped that during the next year a Cobbler's shop will be started. Mops and mats are being made out of old condemned clothing. Straw brooms are made for the Public General Hospital, also floor polish.

Owing to the interest shown by Mr. Robinson, Dispenser, the Hospital now makes its own metal polish, thereby promoting economy.

Board of Visitors.—The Board of Visitors met thrice during the year, at the October meeting there was no quorum. The Honourable Altamont DaCosta, O.B.E., was appointed to the Board *vice* His Honour Mr. Justice Adrian Clark, resigned, and Dr. Joyce Isaacs Saward *vice* Dr. Lewis Crooks, deceased. Dr. Saward has shown great interest in the working of the Hospital as also Venerable Archdeacon J. L. Ramson, M.A., and the Reverend Father Charles F. Arnold, S.J. The resignation of Mrs. B. M. Wilson, who always took a keen and practical interest, is much regretted as is also that of the Honourable Dr. B. M. Wilson, late Superintending Medical Officer, who was always ready to encourage Psychiatry and Mental Hospital management.

Visits.—His Excellency the Governor, Sir Alexander Ransford Slater, and Lady Slater visited the Hospital on Xmas Day and made a tour of the wards, much to the delight of the patients and staff. The record of this visit as set forth by His Excellency in the Visitors' Book, is most inspiring and encouraging.

The Honourable Dr. B. M. Wilson, late Superintending Medical Officer, visited the Hospital on September 22nd and made a complete inspection.

Amusements of Patients.—Cricket, dances, concerts, football and other amusements have taken place as usual; indoor games are also provided. Some contributing patients enjoy motor car drives and relatives of patients in this class are encouraged to arrange such outings. Many patients enjoy parole within the grounds.

The Annual Sports were held on October 26 and the success of the function was again due to the efforts of all the Officers. Lady Stubbs graciously attended in spite of the inclement weather and presented the prizes.

The thanks of all are due to all those friends of the Hospital who contributed to the Sports Fund.

On Xmas day all working patients enjoyed a Christmas Tree and received small gifts.

Harold Cocking, Esq., The Times Store and others have sent large quantities of books and periodicals which gifts are always very welcome.

Church Services.—These have been held as usual and a good attendance has been maintained. The Revd. Father Semmes has been a keen worker amid the Roman Catholic patients who could not attend Mass.

The Asylum during 1932 lost a very fine officer by the sudden and untimely death of Mr. A. Carney, a man whose character well warranted his promotion in 1927. The Asylum has also lost two staunch friends, namely, Dr. and Mrs. B. M. Wilson on account of Dr. Wilson's retirement from the Service. Lastly, all regret the transfer of Sir Reginald and Lady Stubbs to Cyprus. It can be truthfully stated that had it not been for the interest taken by Sir Reginald Stubbs, this Hospital could not and would not have been what it is to-day.

Staff.—Dr. H. H. James was on leave from 7th May to 18th September, 1932, inclusive.

Miss H. J. Tyler, Matron, was also on leave from 27th April to 1st September, 1932. During the absence of the Matron, Miss Grant, Assistant Matron, acted as Matron.

All Medical Officers, Matrons and the Chief Attendant have worked hard and loyally; this fact was most apparent during the anxious hurricane days of November.

Dr. U. N. Murray is to be congratulated on his prompt answer to the call of duty outside his sphere in that at an hour's notice he left to help the victims of the disaster in Cayman Brac.

The Matron, and Assistant Matron, have been indefatigable in their work not only with regard to the patients, but in furthering the interests of the staff in general.

Mr. E. Thomas was appointed Chief Attendant on probation.

I have to thank the Public General Hospital for their co-operation in dealing with surgical emergencies and the prompt co-operation of the Medical Superintendent of that Institution and his Officers when such occur; also for the assistance of the Government Laboratory and of the Rockefeller Foundation.

Miss B. McFarlane was appointed Storekeeper, *vice* Mrs. Hogg, retired. Miss L. Bogle has been appointed Assistant Storekeeper.

The usual courses of training in Mental Nursing were held; the Medical Officers, Matron and Assistant Matron are to be congratulated on their efforts towards raising the standard of Mental Nursing. 10 female nurses and 6 male nurses passed the final examination and 8 female and 6 male nurses passed the preliminary.

The Thrift Club is making progress.

The following members of the Subordinate Staff left the Service:—

Male Nurses and Artisans—	
Retired on Pension	1
Dismissed	1
Female Nurses—	
Retired on pension	1
Resigned	5
Died	2
Dismissed	4

In several instances fines have had to be imposed, this especially for lack of vigilance when on night duty. There would be less trouble if they were residential and could be properly controlled. A Nurses' Home is urgently needed.

No member of the subordinate staff sustained severe injury through violence on the part of patients, though several have received minor injuries and had their clothing destroyed.

Financial.—The amount authorised for meeting expenses during the financial year 1932-33, including a Special Warrant for £101 for Wages is £48,980. The gross expenditure for the calendar year 1932 was £42,868 8s. 5d.

Comparing the expenditure for the calendar year with the authorised amount for the financial year the saving is £6,112 in round figures.

It must again be stated that Votes covering items such as dietary, clothing and bedding, furniture, travelling expenses of discharged patients and funeral expenses, cannot be definitely estimated for per annum. The varying number of patients in residence, the destructive propensities of some and the discharge rate can never be accurately estimated for each year.

The Statutory Statistical Tables follow.

R. W. Dale Hewson,
Medical Superintendent, Lunatic Asylum.

Table I.—Showing the actual Admissions, Re-admissions, Discharges and Deaths during the Calendar Year ended 31st December, 1932.

	Males.	Females.	Total.	Males.	Females.	Total.
In Asylum, 1st January, 1932	..	..	..	..	..	..
Cases admitted—						
First admissions	215	184	399	876	894	1,770
Not first admissions	74	72	146			
Captured	3	..	3			
Returned from Public Hospital	5	2	7	..	..	..
Born	..	1	1			
Total cases admitted during the year	..	..	..	297	259	556
Total cases under care during the year	..	..	..	1,173	1,153	2,326
Cases discharged—						
Recovered	87	60	147			
Relieved	63	54	117			
Not improved	5	2	7			
Escaped	3	..	3			
Died	102	83	185			
Sent to Public Hospital for surgical treatment	8	2	10			
Infants died	..	1	1			
Infants discharged	..	..	..	..	..	..
Total discharged and died during year	..	..	..	268	202	470
Remaining in Asylum, 31st December, 1932		..	..	905	951	1,856
Average number resident during the year	..	..	..	898	919	1,817

Table Ia.—Showing the number of previous attacks among those admitted during the Calendar Year, 1932, distinguishing those attacks that have been treated to recovery and discharged.

Number of previous attacks.	Having had previous attacks.					
	All attacks.			Attacks followed by discharge or recovery.		
	Males.	Females.	Total.	Males.	Females.	Total.
Have had 1 previous attack	50	21	71	22	24	46
Have had 2 previous attacks	14	16	30	5	15	20
Have had 3 previous attacks	3	11	14	1	2	3
Have had 4 previous attacks	2	8	10	2	1	3
Have had more than 5 attacks	5	2	7	2	3	5
Unknown	..	14	14	..	1	1
	74	72	146	32	46	78

Table II.—Showing the Causes of Death among Male Patients during the Calendar Year, 1932, with the ages at Death.

——	Under 20	20 and under 30	30 and under 40	40 and under 50	50 and under 60	60 and under 70	70 and over.	Total.
	M.	M.	M.	M.	M.	M.	M.	M.
Chronic Brain Disease ..	..	..	1	6	2	3	..	12
Cerebral Hæmorrhage ..	..	..	..	..	..	..	..	..
Maniacal Exhaustion ..	..	..	1	1	..	..	..	2
Sclerosis ..	..	..	1	..	..	..	..	1
General Paralysis ..	..	3	9	10	7	3	..	32
Dysentery ..	..	1	..	1	..	..	..	2
Intestinal Obstruction ..	..	..	..	1	..	..	..	1
Chronic Colitis ..	..	1	..	..	..	..	..	1
Pellagra ..	..	1	..	..	..	..	..	1
Syphilis ..	..	..	1	..	..	..	..	1
Pulmonary Tuberculosis ..	1	5	..	15	1	1	1	24
General Tuberculosis ..	..	..	..	..	..	..	..	..
Cerebral Abscess ..	..	1	..	..	..	..	..	1
Diseases of the Circulatory System ..	..	..	..	..	2	3	..	5
Diseases of the Urinary System ..	..	..	1	1	..	..	..	2
Appendicitis ..	..	..	..	..	..	..	..	..
Cancer of Stomach ..	..	..	..	..	..	..	1	1
Pneumonia ..	..	1	4	1	..	..	..	6
Septicæmia ..	..	..	..	..	1	..	..	1
Senile Decay ..	..	..	..	..	..	1	7	8
Fracture of Skull ..	..	..	..	1	..	..	..	1
								102

Table II.—Showing the Causes of Deaths among Female Patients during the Calendar Year, 1932, with the ages at Death.

——	Under 20	20 and under 30	30 and under 40	40 and under 50	50 and under 60	60 and under 70	70 and over.	Total.
	F.	F.	F.	F.	F.	F.	F.	F.
Chronic Brain Disease ..	..	..	3	1	1	..	..	5
Cerebral Haemorrhage ..	..	..	1	1	..	2	2	6
Maniacal Exhaustion ..	..	..	..	1	..	..	..	1
Cerebral Tumour ..	..	..	..	..	..	..	..	..
Epilepsy ..	..	..	..	..	..	..	..	..
Gen. Paralysis of the Insane ..	..	..	1	..	..	..	..	1
Dysentery ..	..	1	2	2	..	..	..	5
Enteric Fever ..	..	1	1	1	..	..	..	3
Pellagra ..	..	..	2	..	2	..	..	4
Pulmonary Tuberculosis ..	1	6	5	6	3	2	1	24
Tuberculosis, other forms ..	..	..	..	..	..	..	..	..
Syphilis ..	..	1	..	2	..	..	..	3
Pneumonia ..	..	..	..	1	..	..	..	1
Diseases of the Circulatory System ..	..	..	1	1	3	2	..	7
Diseases of the Respiratory System ..	..	..	..	..	..	..	..	..
Diseases of the Urinary System ..	..	..	..	1	3	3	..	7
Tumour of Brain ..	..	. . .	..	..	..	1	..	1
Cirrosis of Liver ..	..	..	..	..	..	1	..	1
Pernicious Anæmia ..	..	..	..	..	..	..	..	..
Meningitis ..	..	..	1	..	..	..	..	1
Senile Decay ..	..	..	..	..	2	5	1	8
Septicaemia ..	..	..	2	..	2	1	..	5
Infant of Premature Birth ..	..	..	..	..	..	..	..	1
								84

Table III.—Showing the duration of the Disorder on Admission in the Admissions, Discharges and Deaths during the Calendar Year ended 31st December, 1932.

Class.	Admission.			Discharges.						Deaths.		
				Recovered.			Relieved or otherwise.					
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
First Class—First attack, and within 3 months on admission	138	150	288	37	46	83	22	11	33	37	60	97
Second Class—First attack, above 3 and within 12 months on admission	56	10	66	18	1	19	10	2	12	21	4	25
Third Class—Not first attack, and within 12 months, etc.	53	60	113	21	4	25	13	40	53	14	8	22
Fourth Class—First attack, or not but of more than 12 months on admission	19	15	34	3	5	8	18	3	21	17	3	20
Fifth Class—Congenital	1	1	2	. .	. .	. .	1	. .	1	. .	. .	. .
Unknown	22	20	42	8	4	12	4	. .	4	13	8	21
Total . .	289	256	545	87	60	147	68	56	124	102	83	185

Table IV.—Showing the probable Causes of Insanity in the Patients admitted during the Calendar Year ended 31st December, 1932.

Cause of Insanity.	Number of instances in which each Cause was assigned.											
	Number of Cases. Admissions—Males, 289. Females, 256—Total, 545.											
	As predisposing Cause.			As exciting Cause.			As predisposing or exciting where these could not be distinguished.			Grand Total.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Moral—												
Domestic trouble (including loss of relatives and friends)	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Adverse circumstances (including business anxieties and pecuniary difficulties . .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Mental anxiety and worry (not included under above two heads) and over-work . .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Religious excitement	12	8	20	. .	. .	. .	. .	. .	. .	12	8	20
Love affairs (including seduction) . .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Physical—												
Intemperance in drink	13	. .	13	. .	. .	. .	. .	. .	. .	13	. .	13
Accident or Injury	1	. .	1	. .	. .	. .	. .	. .	. .	1	. .	1
Traumatism	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Other bodily disease	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Previous attacks	78	46	124	. .	. .	. .	. .	. .	. .	78	46	124
Heredity influence	41	50	91	. .	. .	. .	. .	. .	. .	41	50	91
Adolescence	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Epilepsy	. .	. .	. .	14	14	28	. .	. .	. .	14	14	28
Puerperal	. .	2	2	. .	. .	. .	. .	. .	. .	. .	2	2
Syphilis	32	. .	32	. .	34	34	. .	. .	. .	32	34	66
Not known	. .	. .	. .	. .	. .	. .	80	95	175	80	95	175
Senility	6	. .	6	. .	. .	. .	. .	. .	. .	6	. .	6
Menopause	. .	4	4	. .	. .	. .	. .	. .	. .	. .	4	4
Ganga Smoking	8	. .	8	. .	. .	. .	. .	. .	. .	8	. .	8
Puberty	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Tubercular Disease	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Venereal Disease	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Fevers	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Congenital defect ascertained	4	3	7	. .	. .	. .	. .	. .	. .	4	3	7
										289	256	545

Table V.—Showing the form of Mental Disorders in the Admissions, Recoveries and Deaths during the year and the form of Mental Disorder of the Inmates on 31st December, 1932.

Form of Mental Disorder.	Admissions.			Recoveries.			Deaths.			Remaining in Asylum.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
I. Congenital or Infantile Mental Deficiency ..	..	..	..	..	..	..	..	..	..	..	..	..
(Idiocy, Imbecility) occurring as early in life as it can be observed ..	4	3	7	..	..	..	..	..	..	..	8	8
Intellectual—												
With Epilepsy	..	4	4	..	..	..	..	4	4	44	..	44
Without Epilsepsy	..	..	..	..	..	..	..	..	..	..	..	..
Moral	..	..	..	..	..	..	..	..	..	..	..	..
II. Insanity occurring later in life—												
Insanity with Epilepsy ..	14	9	23	4	..	4	..	..	..	..	38	38
General Paralysis of the Insane ..	32	1	33	..	..	..	32	1	33	51	1	52
Insanity with the grosser brain lesions	7	..	7	..	..	..	..	..	..	..	..	..
Acute Delirium (Acute Delirious Mania)	..	..	..	..	..	..	..	..	..	..	..	..
Confusional Insanity	18	10	28	38	4	42	2	4	6	..	..	..
Stupor	..	..	..	..	..	..	..	..	..	..	..	..
Primary Dementia ..	..	..	..	..	..	..	..	..	..	..	..	..
Mania—												
Recent	78	52	130	26	18	44	36	25	51	230	321	551
Chronic	10	4	14	..	..	..	..	11	11	285	140	425
Recurrent	66	40	106	18	6	24	..	..	..	73	116	189
Depressive Psychosis	..	..	..	..	..	..	..	..	..	..	..	..
Melancholia—												
Recent	5	15	20	..	6	6	..	3	3	10	32	42
Chronic	3	6	9	..	1	1	24	..	24	96	4	100
Recurrent	..	10	10	..	2	2	..	4	4	..	116	116
Alternating Insanity	4	19	23	..	18	18	..	7	7	..	..	..
Delusional Insanity	36	20	56	..	..	..	..	4	4	89	..	89
Systematised	..	..	..	..	..	..	..	..	..	..	11	11
Non-systematised	..	..	..	..	..	..	..	..	..	..	..	..
Volitional Insanity—												
Impulse	..	..	..	..	..	..	..	..	..	..	..	..
Obsession	..	..	..	..	..	..	..	..	..	..	..	..
Doubt	..	..	..	..	..	..	..	..	..	..	..	..
Moral Insanity	..	..	..	..	..	..	..	..	..	..	..	..
Dementia	..	..	..	..	..	..	..	10	10	..	2	2
Senile	12	4	16	..	..	..	8	10	18	27	60	87
Secondary or Terminal	..	4	4	1	..	1	..	..	..	..	50	50
Praecox	..	54	54	..	4	4	..	..	..	..	50	50
Neurosis—												
Neurasthenia	..	..	..	..	..	..	..	..	..	..	..	..
Anxiety Neurosis	..	..	..	..	..	..	..	..	..	..	..	..
Psychoneurosis—												
Hysteria	..	1	1	..	1	1	..	..	..	..	2	2
Psycasthenia	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	289	256	545	87	60	147	102	83	185	905	951	1856

FINANCIAL STATEMENT.

TABLE VI.—Cost of Maintenance for the Calendar Year, 1932.

	£	s.	d.
Salaries	5,546	0	11
Wages	16,409	3	1
Religious Services	60	0	0
Dietary	15,517	17	9
Uniform for Nurses and Servants ..	312	5	11
Furniture and Utensils	234	0	5
Clothing and Bedding ..	1,935	14	3
Drugs and Medical Appliances ..	302	2	2
Funeral Expenses	103	14	6
Travelling Expenses of Discharged Lunatics	90	18	7
Farm and Ground and Repairs ..	297	7	6
Rent of Telephones ..	93	18	0
Washing and Sanitary Arrangements	363	16	1
Fuel and Lighting and Power ..	880	16	10
Water Rates	503	0	0
Miscellaneous	209	9	5
Stationery	8	3	0
	42,868	8	5

LESS REIMBURSEMENTS.

	£	s.	d.	£	s.	d.
Contributing Patients	£2,904	2	9			
Miscellaneous Revenue	124	14	6	3,028	17	3
Net cost to General Revenue ..				£39,839	11	2

TABLE VII.—Statement respecting Minor Funds of the Jamaica Lunatic Asylum, from 1st January to 31st December, 1932.

1.—SERVANTS' FINE FUND.

	£	s.	d.
Balance on 31st December, 1931 ..	213	1	6
Receipts in 1932	22	3	5
	235	4	11
Expenditure in 1932	13	8	10
Amounts at Credit 31st December, 1932	£221	16	1

2.—PATIENTS' FUND.

(Including the O'Loughlin Bequest.)

	£	s.	d,
Balance on 31st December, 1931 ..	2,276	15	1¾
Receipts in 1932	207	1	10½
	2,483	17	0¼
Expenditure during 1932	163	5	8
Amount at Credit 31st December, 1932	£2,320	11	4¼

TABLE VIII.—Shewing the Total Gross Cost, the Re-imbursement-in-Aid of Expenses incurred by the Government and the net Cost of Lunatic Asylum to General Revenue for the years 1928-1929 and 1929-1930 and for the Calendar years ended 31st December, 1930, 1931 and 1932.

Year.	Total Gross Cost.	Reimbursements.		Total Re-imbursements in-Aid.	Net Cost to General Revenue.
		Contributing Patients.	Miscellaneous Revenue.		
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1928-1929 ..	45,178 19 6	2,698 18 4	81 19 2	2,780 17 6	42,398 2 0
1929-30 ..	46,643 5 3	3,126 12 6	114 13 2	3,241 5 8	43,401 9 7
1930 ..	47,146 9 10	2,847 2 3	90 5 2	2,937 7 5	44,209 2 5
1931 ..	45,116 19 4	3,000 4 5	104 10 4	3,104 14 9	42,012 4 7
1932 ..	42,868 8 5	2,904 2 9	124 14 6	3,028 17 3	39,839 11 2

TABLE IX.—A Return showing the General Financial Operations of the Lunatic Asylum for the years 1928-1929, 1929-1930, and for the Calendar Years ended 31st December, 1930, 1931 and 1932.

Year.	Salaries and Religious Services.	Wages.	Dietary.	Uniform for Nurses. and Servants.	Furniture and Utensils.	Clothing and Bedding	Drugs and Medical Appliances.
	£ s.. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1928-1929 ..	4,312 6 11	13,222 11 9	20,175 9 1	424 0 1	645 1 5	3,297 12 0	519 11 0
1929-1930 ..	4,585 7 6	14,184 10 8	21,076 11 4	738 19 11	378 1 8	2,498 0 5	346 13 8
1930 ..	5,042 3 10	14,660 13 9	20,681 4 3	588 11 10	569 4 11	2,318 17 7	365 7 11
1931 ..	5,582 9 6	15,969 2 2	10,188 10 10	615 1 3	487 10 10	2,569 17 3	445 14 5
1932 ..	5,606 0 11	16,409 3 1	15,517 17 9	312 5 11	234 0 5	1,935 14 3	302 2 2

Year.	Funeral Expenses.	Travelling Expenses of Discharged Lunatics.	Farm and Grounds and Repairs.	Rent of Telephones.	Washing and Sanitary Arrange-ments.	Fuel Lighting and Power.	Water Rates.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1928-1929 ..	115 15 1	102 19 6	300 6 3	64 13 1	512 19 9	648 12 0	505 0 0
1929-30 ..	99 17 1	98 11 10	395 16 3	81 7 6	539 13 4	776 2 7	503 0 0
1930 ..	106 13 3	81 18 1	509 7 0	94 2 0	579 14 10	784 17 2	403 0 0
1931 ..	161 10 5	75 1 2	346 7 1	96 0 6	520 0 10	1,051 1 6	603 0 0
1932 ..	103 14 6	90 18 7	297 7 6	93 18 0	363 16 1	880 16 10	503 0 0

Year.	Miscel-laneous	Stationery.	Electric Fans.	Purchase of Typewriting Machine.	Installation of Telephones.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1928-29	291 14 2	38 7 5	..	..	2 0 0
1929-30	292 14 3	38 17 3	9 0 0	..	..
1930	322 6 9	38 6 8	..	..	..
1931	329 1 11	46 12 6	8 13 0	21 4 2	..
1932	209 9 5	8 3 0	..	..	..

R. W. DALE HEWSON,
Medical Superintendent Lunatic Asylum.

(D) Return of Diseases and Deaths in the Public General Hospitals (outside Kingston) during 1932.

Diseases.	Cases.	Deaths.	Out-Patients.
Chicken Pox	3	..	4
Diphtheria	7	1	..
Dysentery—Amoebic	28	7	22
Bacillary	1	1	7
Unclassified	14	1	2
Erysipelas	8	1	1
Enteric Fevers	384	104	126
Gonococcal Infections	661	2	2,328
Influenza	54	..	238
Leprosy	1	..	2
Malaria—Tertian	1,071	50	2,411
Quartan	31	..	4
Sub-Tertian	646	41	1,711
Chronic	2	2	..
Blackwater	15	4	4
Unclassified	278	9	1,366
Measles	17	1	45
Poliomyelitis	1	1	18
Encephalitis Lethargica	2	2	..
Mumps	8	..	22
Scarlet Fever	2	..	..
Soft Chancre	89	..	223
Syphilis—Primary	142	..	589
Secondary	59	..	882
Tertiary	372	11	1,209
Congenital	28	..	196
Unclassified	104	..	1,684
Septicaemia	18	9	15
Tetanus	37	20	8
Tuberculosis—Pulmonary	110	19	298
Other forms	101	5	91
Whooping Cough	..	..	11
Yaws	46	..	2,356
Alcoholism	11	..	13
Anæmias	56		221
Diabetes	42		66
Pellagra	2		2
Beri-beri	1	..	1
Rheumatism—Acute	98	2	703
Chronic	48	..	1,019
Rickets	1	..	1
Tumours—Malignant	178	32	92
Non-Malignant	69	1	71
Diseases of the Ductless Glands	13	..	15
" " Nervous System	320	38	819
" " Eye	215	..	690
" " Ear	42	3	178
" " Circulatory System	364	68	703
" " Lymphatic System	166	1	374
" " Respiratory System	604	89	1,274
" " Digestive System	1,598	127	5,289
" " Spleen	6	1	9
" " Breast	89	..	239
Parasites	250	7	1,939
Diseases of the Genito-Urinary System (non-venereal)	1,989	111	3,822
" " Puerperal State	561	54	178
" " Skin and Cellular Tissues	1,170	21	7,458
" " Bones and Organs of Locomotion	960	7	612
Malformations	12	..	1
Diseases of Infancy	15	5	53
Diseases of Old Age	11	2	76
Poisons	7	1	1
Diseases produced by external causes	3,029	70	7,335
Ill-defined diseases	63	6	70
Other General Diseases	1	..	8
No Disease	27	..	11
Total	16,358	942	49,216

(E) Return of Surgical Operations, Public General Hospitals (excluding Kingston) 1952.

	Cases.
1. Operations upon the Female Genital Organs—	
Salpingectomy	58
Colporrhaphy	3
Oophorectomy	24
Myomectomy	1
Dudley's Operation	3
Hysterectomy	57
Granuloma Pudendi	2
Uterine suspension	2
Removal of Ovarian Cyst	2
Curettage	233
Dilation of Cervix	4
Imperforate Hymen	2
Cauterization	12
Extra uterine gestation	7
Bartholin Cyst	4
Retained Placenta	19
Perineorrpaphy	12
2. Parturition—	
Instrumental Delivery	52
Caesarean Section	5
Craniotomy	1
Induction of Labour	6
3. Operations on Hernia—	
Radical cure of Hernia	115
Strangulated Hernia	17
Herniotomy	10
4. Operations for Appendicitis—	
Appendicectomy	199
5. Operations upon the Stomach and Intestines—	
Perforation of gastric ulcer	3
Colostomy	10
Intestinal Obstruction	14
Gastro-enterostomy	14
Partial Gastrectomy	1
Laparotomy	34
Resection of gut	2
6. Operation upon the Bladder—	
Suprapubic Cystotomy	23
Vesical calculus	2
7. Operations for Disease of the Prostate—	
Suprapubic prostatectomy	6
Perineal Section	7
8. Operations on the Urethra and Penis—	
Dilating urethral strictures	212
Circumcisions	325
External Urethrotomy	2
Amputation of penis	8
Reduction of paraphimosis	24
9. Operations on the Scrotum and Testicle—	
Radical cure of hydrocele	23
Orchidectomy	6
10. Operations on the Kidney—	
Nephrectomy	1
11. Operations on the Anus and Rectum—	
Fistulae	19
Haemorrhoidectomy	15
Dilating rectal strictures	3
12. Ligature of Vessels—	
Various	28
13. Amputations	180
14. Dislocations	49
15. Operations on the Ear—	
Radical cure for Mastoid	7
16. Operations on the Nose, etc.—	
Removal of adenoids	34
Tonsillectomy	255
Nasal Polyp	5
Hare Lip and Cleft Palate	2
17. Operations on the Thorax—	
Amputation of breast	18
Resection of rib	6

	Cases.
18. Operations on Tendons—	
Tenotomy	4
Suturing tendons	41
19. Ophthalmic Operations—	
Extraction of cataract	12
Enucleation of Eyeball	33
Tumour of Orbit	1
Meibomian Cyst	13
Pterygium	7
Iridectomy	14
Lachrymal apparatus	1
20. Operations on Affections of Bones and Joints—	
Osteomyelitis	19
Sequestrotomy	67
Osteotomy	17
Arthrotomy	13
Removal of Lower Jaw	1
21. Fractures of Bones—	
Setting Fractures	469
Wiring Fractures	3
Plating Fractures	1
Fracture of skull	12
22. Excision of Glands—	
Cervical Axillary Inguinal	128
23. Operations on the Gall Bladder—	
Excision of Gall Bladder	2
Cholecystotomy	2
24. Suturing Wounds	475
25. Removal of Foreign Bodies—	
Bullets, needles, etc.	108
26. Removal of Growths	111
27. Scraping Ulcers	60
28. Excision of Ganglion	9
29. Breaking down Adhesions	4
30. Excision of carbuncle	19
31. Bursae	8
32. Tracheotomy	2
33. Operations on the Antrum and Frontal Sinus	12
34. Skin grafting	11
35. Removal of Meningocele	1
36. Periarterial Sympathectomy	3
37. Minor Operations	2,326
Total	6,530

(F) *Report of the Medical Attendant to the Lepers' Home.*

	Males.	Females.	Total.
No of patients remaining at 31.12.31	63	58	121
" " admitted during the year	17	6	23
" " discharged during the year	1	1	2
" " absconded during the year	4	1	5
" " died during the year	6	4	10
" " remaining at end of year 1932	69	58	127

As will be observed the death rate for the year was 7 per 100, as against 18.8 per 100 for the previous year.

	Males.	Females.	Total.
Daily average for the year	66	58	124
Inmates under 15 years at end of year	2	3	5
Longest period any one inmate remained in the home	51 years 10 months.		

Staff and Accommodation:—The staff remained as in the previous year, viz.—

1 Medical Attendant (also D.M.O., Spanish Town).
1 Superintendent (also the Dispenser for the Institution).
1 Matron.
4 Nurses (females).
2 Cooks.
1 Messenger.

I would again bring to notice the urgent need for adequate accommodation for mental cases.

Buildings and Grounds.—All the buildings, drains, pavements and most of the fences are in need of extensive repairs. I would recommend wire screening for the wards, especially the Infirmary Wards and Meal Sheds, on account of the prevalence of flies, etc. The grounds are in fairly good order but could be greatly improved with the aid of modern equipment, e.g., Lawn Mowers.

Sanitary Arrangements.—Dry Earth bucket system. I would recommend that the present system be replaced by having absorption pits with water-borne system.

Drainage.—Open surface concrete drains. The fall is very small.

Dietary.—As approved by His Excellency the Governor.

Occupation and Recreation.—The services, as in previous years, of all inmates, able and willing, are utilized in various work approved of by the Government—Labourers, Gatemen, Ward Orderlies, etc., etc. Money payments are made regularly for these services and the accounts submitted to Head Office.

The Farm continues to be of much value to the inmates. The produce is used in the dietary, and the owners of the produce are paid at the ruling Contract Prices (Rule 80).

In and out-d'oor games as usual, including concerts and lantern lectures, were thoroughly enjoyed by the inmates. Lantern lectures were given by friends.

The Annual Xmas Dinner and Treat were duly observed.

My thanks are due to the many kind friends who assisted in this work—Miss Marvin and friends of the Deaconess Home, Mrs. J. A. Henderson, wife of the Acting S.M.O., and friends, including Mrs. Bourne, Mrs. Spooner and Lady Slater, all of whom took much interest and contributed to the Xmas treats. I reiterate my sincere thanks to these ladies for their interest in the work we are doing for the affected. We are also very thankful for gifts of reading matter from numerous friends.

Religious ministration continues under the guidance of the Church of England, the Roman Catholics, the Salvation Army and the Seventh-day Adventists.

Treatment.—Medical treatment continues with improvement to the inmates. I had to cease the intramuscular method on account of ocular troubles and refusal of the patients. My observation leads me to the conclusion that fresh air, regular diet, daily baths, moderate exercise, and sunlight are the main factors in the promotion of health and betterment of this disease.

My thanks are due to Dr. G. M. Saunders of the Yaws Commission who visited frequently during the year and made repeated serological tests and observations which show several inmates to be positive, either for Yaws or Syphilis, in addition to Leprosy. The result of his findings and advice given is greatly appreciated and is having my attention.

The Staff gave excellent service during the year, and my thanks are especially due to Mr. E. E. A. Levy, the Superintendent, and Miss Margaret McPherson, the Matron, for their willing co-operation and zeal in assisting me with the work of the Institution.

T. A. Percival Wynter,
Medical Attendant, Lepers' Home.

VI.—PRISONS.

Reports of the Medical Officers of Prisons.

General Penitentiary, Kingston.

There were 1,200 prisoners admitted during the year, of whom 9 were in feeble health.

There were 1,101 prisoners discharged during the year, of whom 2 were in feeble health.

Five deaths occurred during the same period.

Three hundred and seventy-seven officers received treatment.

The health of the prisoners and the sanitary condition of the prison have been satisfactory.

Return showing General Medical Statistics and proportion of cases treated within and outside the Hospital for the year ended 31.12.32.

No. in custody on 1st January, 1932	605
Received during the year	1,200
Daily average number in custody	649
Removed from Prison on medical grounds	4
Deaths	5
Removed to Lunatic Asylum	8
Greatest number in custody on any one day	719
Greatest number of sick in hospital on any one day	56
Daily average number of sick in hospital	40
Number of sick treated outside of hospital	5,736
Number of prisoners discharged during the year	1,101
Number of minor operations performed	81
Number of vaccinations done	574
Number of salvarsan injections given	304

R. G. Sherlock,
Acting Surgeon.

ST. CATHERINE DISTRICT PRISON.

The sanitary condition of the wards, hospital, officers' quarters, and compounds was maintained at the usual highly satisfactory standard.

The standard of health maintained among the prisoners was good.

The total number of admissions to hospital for the year was 636. Of these 298 were cases of Malarial Fever. Only one death occurred among the inmates—due to acute nephritis. One execution by hanging was carried out in accordance with the provisions of the Law.

The mortality (excluding execution) based on the daily average number in custody was 1.81 as compared with 3.78 for 1931 and 7.968 for 1930.

Sixty-seven officers were treated during the year. As usual the chief cause of sickness was Malarial Fever.

Extensive repairs were carried out at the quarters occupied by the Chief Warder and proper screening against mosquitoes and other insects done at the same time.

I would very strongly recommend that the quarters occupied by the Principal Warders be also made proof against the invasion of mosquitoes and other insect pests.

Return showing the following for the year ended 31st December, 1932.

Mortality from Execution (1) From natural cause (1) ..	2
Insanity	5
Removal on medical grounds	nil
Cases treated among prisoners in hospital ..	636
Number in custody 31st December, 1932 ..	603
Received into Prison during 1932	3,282
Daily average in custody during 1932	552
Death per 1,000 calculated on the daily average ..	1.81
Cases treated in prison	1,472
Greatest number in custody any one day during 1932 ..	652
Discharged during the year	3,246
Number of officers treated in the prison	67
Number of prisoners received in feeble health ..	47
Number of prisoners discharged in feeble health ..	50
Daily average of sick in hospital	21
Daily average of sick treated outside hospital ..	69
Greatest number of sick in hospital any one day ..	36
Greatest number of sick treated outside hospital any one day	155
Number of cases treated outside hospital ..	836

H. H. BLAIR,
Surgeon.

GOVERNMENT INDUSTRIAL SCHOOL, STONY HILL.

There were 664 inmates treated in hospital during the year. The chief diseases were:—

Influenza	120 cases
Ulcers	73 "
Acute Indigestion ..	52 "
Bronchitis	21 "

83 inmates were treated for Intestinal Parasites and 51 were inoculated with Typhoid Vaccine.

82 Salvarsan Injections were given.

No deaths occurred in the year, and the general health was good.

The general sanitation has been as satisfactory as possible under the prevailing conditions.

F. C. WRIGHT,
Medical Officer.

Return of Diseases.

Disease.	General Penitentiary.			St. Catherine District Prison.			Industrial School, Stony Hill.		
	In-patients.	Deaths.	Out-patients.	In-patients.	Deaths.	Out-patients.	In-patients.	Deaths.	Out-patients.
Enteric Fever	1	..	..	2	..	..	..	..	..
Malaria	130	..	242	298	..	66	..	..	..
Influenza	79	..	..	1	..	..	117	..	..
Measles	..	..	..	2	..	..	19	..	..
Chicken Pox	1	..	..	1	..	14	12	..	..
Dysentery	..	..	..	1	..	..	..	..	..
Yaws	1	..	..	2	..	21	16	..	..
Tuberculosis, Pulmonary	1	..	..	1	..	..	1	..	..
Syphilis	10	..	44	3	..	3	1	..	..
Soft Chancre	..	..	..	22	..	39	..	..	..
Gonorrhoea	7	..	281	5	..	75	1	..	..
Rheumatism—Acute	23	..	152	5	..	4	5	..	..
Chronic	..	..	..	1	..	1	..	..	..
Anaemia	4	..	146	16	..	12	6	..	..
Tumour, Malignant	..	..	..	1	..	1	..	..	..
Diseases of the Nervous System	30	1	195	9	..	23	6	..	..
" " Eye	18	..	120	12	..	2	17	..	..
" " Ear	..	..	..	..	..	3	..	..	..
" " Circulatory System	7	..	12	5	..	7	2	..	..
" " Lymphatic System	..	..	..	10	..	3	1	..	..
" " Respiratory System	12	..	79	20	..	13	29	..	..
" " Digestive System	100	3	2,050	58	..	140	71	..	..
Parasites	3	..	..	13	..	10	71	..	..
Diseases of the Genito-Urinary System (non-venereal)	8	..	138	32	1	18	7	..	..
Diseases of the Puerperal State	1	..	..	..	..	..	..	..	..
Affections of the Skin and Cellular tissues	98	..	1,306	59	..	206	124	..	..
Diseases of the Bones and Organs of Locomotion	1	..	..	8	..	2	6	..	..
Injuries	101	..	918	31	..	161	87	..	..
Other Diseases	68	1	53	36	1	12	65	..	..
Total	704	5	5,736	654	2	836	664	..	..

VII.—SCIENTIFIC.

Report of the Bacteriological and Pathological Laboratory.

Administration.—The Laboratory Staff consisted of—

1 Bacteriologist and Pathologist.
4 Laboratory Assistants.
1 Clerical Assistant.
2 Washers and Cleaners.

In January, the Second Assistant was seconded for service with the Yaws Commission. The Fourth Assistant severed his connection with the Laboratory at the end of February. The First Assistant was on leave for three months, the acting Second and the acting Third Assistants were each on leave for one month during the year. In October, the Kingston and St. Andrew Corporation voted the sum of 25/- per week as salary for an additional assistant to help with the examination of water samples. New members of the staff are Messrs. W. A. King, A. D. Aiken, H. O. Fox and P. A. James.

In spite of the present economic depression and a new scale of fees involving a reduction of 50% in many of the charges, the Laboratory earned £148 15s. during 1932, in comparison with £166 13s. for 1931, and saved the Government about £256 on the purchase of Typhoid Vaccine.

GENERAL.

Vaccines.—The preparation of Typhoid Vaccine was resumed. Stock cultures of smooth organisms were obtained from the Harvard Medical School and the Massachusetts State Anti-toxin and Vaccine Laboratory. 16,560 c.c. were sent to the Island Medical Stores for distribution during the year. Autogenous vaccines were prepared on request.

Serology.—The Kahn Precipitation Test was used almost exclusively during the last six months of the year. The antigen was prepared in the Laboratory and standardized against a sample very kindly supplied by Dr. R. L. Kahn of the University of Michigan Hospital.

Dreyer's Macroscopic tube method was used for agglutination tests for the Enteric group. It is intended to replace this with the live culture method at an early date.

The Biological Test for Human Blood was used during the latter half of the year. The serum was prepared in the Laboratory.

Equipment.—A Khan shaking machine was made locally and installed at the end of March. A Leitz binocular research microscope was received early in November. During December a Card Index Filing System for the Laboratory records was installed. A dozen white mice were obtained through the Rockefeller Foundation and breeding has been progressing very satisfactorily. In five months the original dozen has increased to fifty.

Research.—Owing to the great increase of work during 1932, little time was available for any but routine work. Forty samples of milk were collected and examined. The results are in Table II and show that the condition of this food leaves much to be desired.

Ackees were obtained and fed to twenty kittens with results confirming those of Scott here and Connal and Ralston in Africa.

About 600 sera from Yaws and Lepra patients were received from the Yaws Commission. The Kahn Precipitation Test was performed on these.

Some 65 sera from hospital patients were agglutinated against E. typhi, B. paratyphosus A. & B. Benteriditis, B. dysenteriae (Flexner & Shiga), B. abortus and M. melitensis. Dryer's Macroscopic tube method was used. Work on the last three subjects is still in progress.

TABLE 1.—Origin of all Specimens.

	1928.	1929.	1930.	1931.	1932.
Kingston Public Hospital	6,366	7,130	6,406	7,433	9,061
Mental Hospital ..	170	182	568	687	701
Other Institutions	1,136	970	445	182	1,181
Country Medical Districts	1,084	957	942	708	875
Health Officers	..	..	..	..	175
Private Practitioners	397	519	509	907	642
Total	9,153	9,758	8,870	9,917	12,635

TABLE 1a.

	1928.	1929.	1930.	1931.	1932.
Autogenous Vaccines	16	..	..	157	46
Autopsies ..	39	92	113	103	118
Blood Examinations—					
Counts ..	48	38	96	188	202
Cultures ..	20	2	5	6	15
Parasites ..	81	67	82	141	86
Sugars ..	42	3	56	146	308
Ureas ..	..	3	4	10	16
Examination of Faeces—					
Helminths ..	667	497	737	793	620
Amoebae ..	15	18	58	47	99
B. dysenteriae	..	..	26	6	110
Miscellaneous	6	7	..	.	44
Examinations for Gonococci	70	68	51	85	90
Examinations for B. tuberculosis ..	352	340	478	337	375
Examinations of Milk	..	..	..	..	80
Medico-legal Examinations	78	22	64	99	162
Morbid Histology	103	61	55	63	77
Serology of Syphilis	3,984	4,302	4,466	6,201	7,489
" of Enteric diseases	938	758	497	538	825
Gastric Analyses	5	4	5	3	11
Throat Swabs ..	15	22	12	13	81
Unclassified Examinations	111	22	26	16	126
Urinalyses ..	2,184	3,386	1,962	940	1,293
Water Examinations	207	256	234	199	362

TABLE II.

Nature of Test.	Kingston Public Hospital.	Mental Hospital.	Other Institutions.	Country Medical Districts.	Health Officers.	Private Practitioners.	Total.
Autogenous Vaccines— (B. coli, M. catarrhalis, Staphyloccus, etc. ..	39	..	..	3	..	4	46
Blood Examinations—							
Counts	161	5	2	4	..	30	202
Cultures ..	8	2	..	1	..	4	15
Malarial Parasites + ..	4	1	..	1	..	1	7
Malarial Parasites − ..	38	7	1	11	4	18	79
Sugars	254	..	1	3	..	50	308
Ureas ..	14	..	..	..	..	2	16
Examination of Faeces—							
Ankylostome +	26	42	24	11	..	..	103
Ascaris +	10	17	10	4	..	1	42
Trichocephalus +	19	62	20	4	..	2	107
Helminths −	151	104	50	23	2	38	368
Amoebae +	21	6	1	..	..	3	31
Amoebae −	29	27	1	3	..	8	68
B. dysenteriae +	1	5	..	..	..	..	6
B. dysenteriae −	3	97	..	..	1	3	104
Miscellaneous ..	34	..	..	2	4	4	44
Examinations for Gonococci—							
Gonococci +	23	..	..	7	..	10	40
Gonococci −	14	2	..	3	..	10	29
Gram-neg. diplococci +	13	..	..	5	..	3	21
Examinations for B. Tuberculosis—							
B. tuberculosis +	27	2	9	24	..	22	84
B. tuberculosis −	155	15	9	88	2	22	291
Examinations of Milk—							
B. coli + in 1/1000	..	..	..	..	12	..	12
1/10000 ..	..	..	..	..	9	..	9
1/100000 ..	..	..	..	..	9	..	9
B. coli − in 1/1000 ..	..	..	..	..	10	..	10
Bacteria per cc							
< 100,000 ..	..	..	..	..	8	..	8
< 1,000,000 ..	..	..	..	..	19	..	19
> 1,000,000 ..	..	..	..	..	13	..	13
Medico-Legal articles—							
Blood + ..	77	..	..	..	..	..	77
Blood − ..	55	..	..	..	..	..	55
Semen + ..	2	..	..	..	..	..	2
Semen −	28	..	..	..	..	..	28
Morbid Histology ..	34	..	1	37	5	..	77
Serological Examinations—							
Kahn Precipitation:							
+	1,766	52	369	92	3	60	2,342
−	2,085	100	284	86	1	104	2,660
Doubtful +	76	3	..	2	..	3	84
Wasserman Reaction:							
+	793	37	6	27	..	31	894
−	1,145	72	53	47	..	78	1,395
Doubtful +	84	4	1	3	..	8	100
Spinal Fluid ..	10	..	..	1	..	3	14
Widal Reaction:							
B. typhosus +	115	18	7	150	5	10	305
B. typhosus −	228	13	14	202	12	24	493
B. paratyphosus A+	1	1	..	..	..	..	2
B. paratyphosus A −	9	..	..	6	..	1	16
B. paratyphosus B+	3	..	..	..	..	..	3
B. paratyphosus B −	3	1	..	1	..	1	6

TABLE II, *Contd.*

Nature of Test.	Kingston Public Hospital.	Mental Hospital.	Other Institutions.	Country Medical Districts.	Health Officers.	Private Practitioners.	Total.
Stomach Contents—							
Test Meal ..	11	..	..	..	..	..	11
Throat Swabs—							
Diptheria +	24	..	..	1	2	3	30
Diptheria —	31	1	..	1	5	2	40
Vincent's Angina +	7	..	..	..	..	..	7
Streptococci +	2	..	..	..	..	2	4
Unclassified Examinations	105	4	1	12	..	4	126
Urine Examinations—							
Chemical qualitative ..	1,067	1	4	6	..	47	1,125
Chemical quantitative	105	..	..	..	..	10	115
Bacteriological ..	33	..	..	4	..	16	53
Water Examinations—			(K. & St. A.)				
Filtered:							
Positive ..	..	..	2	..	..	..	2
Doubtful ..	..	..	38	..	..	..	38
Negative ..	..	..	2	..	..	..	2
*Filtered Chlorinated:							
Positive ..	..	..	2	..	8	..	10
Doubtful ..	..	..	74	..	2	..	76
Negative ..	..	..	94	..	..	..	94
Unfiltered:							
Positive ..	..	..	23	..	27	..	50
Doubtful ..	..	..	6	..	10	..	16
Negative ..	..	..	1	..	2	..	3
Unfiltered Chlorinated :							
Positive ..	..	..	8	..	..	..	8
Doubtful ..	..	..	35	..	..	..	35
Negative ..	..	..	28	..	..	..	28

* This includes all "service" water in some of which there is crude chlorinated.

TABLE III.

Causes of Death.	Ordered by Coroner.	Requested by M.O.'s Hosp.	Total.
General Diseases—			
(1) Ankylostomiasis	..	1	
(2) Dysentery Bacillary	1	1	
(3) Dysenteriae Amoebic	..	1	
(4) Enteric Fever	..	3	
(5) Asthemia	..	3	
(6) Status Lymphaticus	..	1	
Total	1	10	11
Injuries—			
(1) Asphyxiation	1		
(2) Burns, Shock and Sepsis	10		
(3) Fracture of Femur	1		
(4) Fracture of Skull	12		
(5) Fracture of Sternum and Ribs ..	1		
(6) Fracture of Pelvic Bone	1		
(7) Rupture of Intestines	4		
(8) Rupture of Liver	7		
(9) Rupture of Uterus	1		
(10) Rupture of Diaphragm	1		
(11) Laceration of Carotid Artery	1		
(12) Poisoning, Antimony		1	
(13) Poisoning, Lead	..	1	
Total ..	40	2	42

TABLE III, *Contd.*

Causes of Death.	Ordered by Coroner.	Requested by M.O.'s Hosp.	Total.
Malignant Tumours—			
(1) Carcinoma of Pylorus		1	1
Total		1	1
Diseases of the Brain and Meninges—			
(1) Cerebral Softening (Syphilitic)	..	1	
(2) Cerebral Haemorrhage	..	1	
(3) Tubercular Meningitis	..	3	
(4) Meningitis	1		
Total	1	5	6
Diseases of Circulatory System—			
(1) Aneurysm of Aorta	..	1	
(2) Aneurysm of Abdominal Aorta		1	
(3) Aneurysm of Right Renal Artery	..	1	
(4) Cardiac Failure	1	1	
(5) Valvular Disease of the heart	..	1	
(6) Occlusion of Coronary Artery	..	1	
Total	1	6	7
Diseases of Respiratory System—			
(1) Pulmonary Tuberculosis	..	4	
(2) Lobar Pneumonia	..	8	
(3) Broncho Pneumonia	1	3	
Total	1	15	16
Diseases of Excretory System—			
(1) Acute Nephritis	..	4	
(2) Chronic Nephritis	2	8	
Total	2	12	14
Diseases of the Digestive System—			
(1) Cirrhosis of Liver	..	1	
(2) Acute Haemorrhagic Pancreatitis	1	..	
(3) Chronic Gastritis	..	1	
(4) Gastro Enteritis	..	2	
(5) Intussusception	..	1	
(6) Duodenal Ulcer	..	3	
(7) Ulcer of Stomach	..	2	
(8) Peritonitis	..	1	
(9) Volvulus	3	3	
Total	4	14	18
Diseases of Reproductory System			
(1) Puerperal Sepsis	..	1	
(2) Pyosalpinx	1	1	
Total	1	2	3
Grand Total	51	67	118

The total number of Throat Swabs for diagnosis has increased from 13 in 1931 to 81 in 1932. Owing to this increase it was decided to use Loeffler's medium for all swabs. 30 swabs were found positive for the Klebs-Loeffler bacillus—this is more than twice as many as the total number of swabs examined during 1931.

825 agglutination tests for the enteric group were performed during 1932 compared with 538 in 1931. About 40% gave a positive result.

There has been an increase of 2,718 specimens (30%) during the past year. This large increase of routine wrok, in addition to the preparation of Typhoid Vaccine and the increase in the number of water samples examined, has made it urgently necessary that another assistant and more adequate remuneration be provided for the Laboratory.

K. LEIGH EVANS,
Acting Bacteriologist and Pathologist.

RETURNS.

TABLES.

I.—STAFF.

Medical Staff.

(Those marked * are registered under Section 17 of Law 49 of 1908 or Laws 1872-1896).

Office.	Name and Qualifications.
Superintending Medical Officer	(Vacant—S.S.M.O., acting).
Senior Sanitary Medical Officer	Henderson, J. A., M.B., Ch.B., B.Sc. (Public Health), D.T.M. & H., Edin.
Medical Superintendent, Public Hospital, Kingston	Westmorland, A. S., M.R.C.S. Eng., L.R.C.P., London, D.T.M. & H., Eng.
Resident Medical Officer, Public Hospital, Kingston	Baxter, G. F., M.R.C.S. Eng., L.R.C.P., Lond.
Ditto ditto ditto	Clark, L. M., M.R.C.S., Eng., L.R.C.P., Lond.
Ditto ditto ditto	Stockhausen, J. M., M.D., C.M. McGill, L.M. S., Nova Scotia.
Ditto ditto ditto	Morrison, H. L., M.B., Ch.B. Edin.
Ditto ditto ditto	Ferguson, L., St. C., L.R.C.P. & S. Edin., L.R.F.P.S. Glasg., B.A., M.D., Howard.
Supernumerary Medical Officer	Golding, M.S., L.R.C.P. & S. Edin., L.R.F.P.S., Glasg.
Ditto ditto ditto	McDonald, H. E. T., M.B., Ch.B., Aberd.
Ditto ditto ditto	Bramwell, H. A., L.R.C.P. & S. Edin., L.R.F. P.S. Glasg. (acting).
Dental Surgeon, Public Hospital, Kingston (part-time)	DePass, S. C., D.D.S.
Radiologist, Public Hospital, Kingston (part-time)	Parkin, C.F.H., M.D., C.M., D.P.H. McGill.*
Government Bacteriologist and Pathologist (acting)	Evans, K. R. L., L.R.C.P. & S. Edin., L.R.F.P. P.S. Glasg., M.P.H. Harvard.
Medical Superintendent, Lunatic Asylum	Hewson, R. W. D., L.R.C.P. & S. Edin., L.R.F. S., Glasg., M.R.C.S., Manitoba.
Assistant Medical Officer, Lunatic Asylum	Myers, J. S., M.D., C.M., McGill.*
Ditto ditto ditto	Cameron, J. J., M.R.C.S., Eng., L.R.C.P. Lond., M.D., C.M., Toronto, L.M., Rotunda Hospital, Dublin.
Ditto ditto ditto	Murray, U. N., M.C.P. & S. Ont.
Ditto ditto ditto	James, H. H., L.R.C.P. & S. Edin., L.R.F.P.S.. Glasg.
Visiting Surgeon, Jubilee Maternity Hospital, Kingston	Mellad, E. V. W., L.R.C.P. & S. Edin., L.F.P. S., Glasg.
District Medical Officers (under new terms of appointment)	
Whole-time.	Davidson, R. H., M.D., Howard.*
	Sherlock, R. G., L.R.C.P. & S. Edin., L.F.P.S., Glasg.
	Anderson, A. A., M.R.C.S. Eng., LR.CP., Lond.
	Gordon, S. R. M., M.D., Howard, L.M.S., Columbia.*
	Curphey, A. G., L.R.C.P. & S. Edin., L.F.P.S., Glasg., M.C.P. & S., Ont.
	Levy, L. R., M.B., Ch.B., Edin.
	Myers, A. E. C., M.B., Ch.B., Aberd.
	Wynter, T. A. P., L.R.C.P. & S. Edin., L.R. F.P.S., Glasg.
Part-time.	Atkinson, R. M., M.D. Tuffts' Medical School, Boston, Mass.*
	Vaz, C. E., L.R.C.P. & S. Edin., L.R.F.P. & S. Glasg.
	Ritchie, F. A., L.R.C.P. & S. Edin., L.F.P.S. Glasg.
	Lecesne, G. I., M.B., Ch.B., Edin.
	Escoffery, W. I., M.B., Ch.B., Aberd., Cert. Lond. Sch. Trop. Medicine.
	James, K. G. W., M.R.C.S. Eng., L.R.C.P., Lond.
	Strudwick, H. T., M.D., C.M., McGill.*
	Arthurs, S. J., M.D., Howard.*
	Greaves, E. S., L.R.C.P. & S. Edin., L.R.F.P. S., Glasg.

Office.	Name and Qualifications.
District Medical Officers (under new terms of appointment) *contd.*	McFarlane, A. L., M.R.C.S., Eng., L.R.C.P., Lond.
Part-time.	Johnston, C. D., M.D., C.M., McGill.*
	Riddell, C. E., M.B., Ch.B., Aberd.
	Mott-Trille, R., M.D., Alabama.*
	Johnson, L. E., M.B., Ch.B., Liverpool.
	Douglas, E. G., L.R.C.P. & S. Edin., L.R.F.P.S., Glasg.
	Wright, F. C. A., M.R.C.S., Eng., L.R.C.P., Lond.
	Forde, J. H., M.D., Toronto.*
	Hayden, A. R. C., M.D., C.M., Dal., L.M.S., Nova Scotia.
	Chamberlain, R. L., L.R.C.P. & S., Edin., L.R.F.P.S., Glasg.
	Lopez, M. M., L.M.S.S.A., London (acting).
	Jackson, P. C., M.D., Howard* (acting).
	Grant, S. C., L.R.C.P. & S. Edin., L.R.F.P.S., Glasg.
	(One position was vacant with Dr. Golding, Supernumerary Medical Officer, acting).
District Medical Officers (under old terms of appointment).	Evans, F. R., M.D., New York.*
Part-time.	Cooper, R. F. C., M.D., C.M., Dal., L.M.S., Nova Scotia.
	Tate, D. L., M.B., Ch.B., Glasg., F.R.C.S., Edin.
	Sanford, Noel, M.D., Canada.*
	Isaacs, S. A., M.D., Bellevue Medical College.*
	Lofthouse, W. O. R., L.R.C.P. & S., Edin., L.F.P.S. Glasg.
	McKenley, A. G., L.R.C.P. & S., Edin., L.F.P.S., Glasg.
	Thomson, A. W., M.B., C.M., Aberd.
	Lyon, L. B., M.C.P. & S., Ont., M.B. Toronto.
	Clarke, A. T., M.D., C.M., Montreal.*
	Bartlett, T. M., M.B., C.M., Edin. (acting).
Port Health Officer and District Medical Officer, Port Royal	McIntosh, J. N., M.B., Ch.B., Edin.
Port Health Officer, Port Antonio	D.M.O., Port Antonio (Dr. A. A. Anderson).
Health Officers (Central Government):	
Whole-time.	Cruchley, I. J., M.R.C.S., Eng., L.R.C.P. Lond., C.P.H., Johns Hopkins.
	Murray, E. E., M.B., B.S., Lond.
	Cruchley, F. H. N., M.R.C.S., Eng., L.R.C.P., Lond., M.B., B.S., Lond., C.P.H., Johns Hopkins.
	Lawrence, H. S., L.R.C.P. & S., Edin., L.R.F.P.S., Glasg., D.P.H., Liverpool.
	Branday, W. J., M.R.C.S., Eng., L.R.C.P., Lond., C.P.H., Johns Hopkins (acting).
	MacPhail, D. H., M.B., Ch.B., Glasg.
	Escoffery, G. S., M.B., Ch.B., Aberdeen, C.P.H., Johns Hopkins.
	Lowe, F. E., L.R.C.P. & S., Edin., L.F.P.S., Glasg. (acting).
	Myers, A. A., M.R.C.S., Eng., L.R.C.P., Lond. (acting).
	Castle, H. D. B., L.S.A., Lond. (acting).
Part-time.	Norton, F. A., M.R.C.S., Eng., L.R.C.P., Lond.
	Pengelley, C. E., M.D., C.M., McGill, D.P.H., Trinity, Dublin.*
Director, Malaria Commission	Aris, F. W., M.R.C.S., Eng., L.R.C.P., Lond.
Medical Officer, Hookworm Commission	Arnold, L. E., L.M.S., Nova Scotia.
Ditto ditto ditto	Sinclair, T. B., L.M.S., Nova Scotia.
Medical Officer, Yaws Commission	Johnston, H. M., M.B., Ch.B., Edin.
Medical Officer, Tuberculosis Survey and Clinic.	
Whole-time.	Isaacs Saward, Dr. E. Joyce, M.R.C.S. England, L.R.C.P., Lond.
Part-time.	Cory, R. A. S., M.B., Ch.B., Bristol, M.R.C.S., Eng., L.R.C.P., Lond.
Surgeon, St. Catherine District Prison (part-time):	Blair, H. H., M.D., Long Island College Hospital Brooklyn, N.Y.*

Principal Members of Nursing Staff.

Matron, Public Hospital, Kingston	Douglas, Miss A. J., M.B.E.
Assistant ditto ditto	Walton, Miss A.
Matron, Jubilee Maternity Hospital, Kingston	(Vacant)
Assistant ditto ditto	McNeil Smith, Miss E.
Matron, Lunatic Asylum	Tyler, Miss H. J.
Assistant ditto	Grant, Miss M.
Matron, Lepers' Home	McPherson, Miss M.
Matrons in Public General Hospitals	Spencer, Miss S. A.
	Sterling, Miss D. V.
	Armstrong, Miss M.
	Orgill, Miss M. I.
	Manahan, Miss E. D.
	Edwards, Miss Ethel
	Webster, Miss V. M.
	Bird, Miss H. L.
	Nicolson, Miss Julia
	Robotham, Miss M. L.
	Marshall, Miss A.
	Thomas, Miss S. A.
	Leamey, Miss E. F.
	Pennicott, Miss H. M.
	Drummond, Miss E. M.
	Bennett, Miss A. H.
	Wright, Miss L.
	Levy, Miss A. L.
	McIntosh, Miss M.

Principal Members of Subordinate Medical and Sanitary Staff.

Dispenser, Public Hospital, Kingston	Thomas, M. J.
Dispenser, Lunatic Asylum	Robinson, C. C. A.
Superintendent and Dispenser, Lepers' Home	E. A. A. Levy
Dispensers in Public General Hospitals	Hossack, C. W.
	Anderson, I. W.
	Bryan, A. V.
	Bryce, Egbert
	Young, D. S.
	Edwards, T. B.
	Andrean, J. A.
	Johnson, S. A.
	Bernard, H. G.
	Watson, V. F.
	Patrickson, C. H.
	Stewart, E. A.
	Bolton, D. O. L.
	Brown, W. S.
	Palmer, J. A.
	Wade, R. M.
	Robb, C. A.
Supernumerary Dispensers	Rodgers, G. B.
	Gruber, C. I.
	Miller, O. G.
Overseers of Works, Hookworm Commission	Duncanson, B. B.
	Davis, H. W.
Senior Technician, Malaria Commission	Edwards, Miss Gwyn.

II.—FINANCT.

(a) Return showing the Expenditure of the Medical Department for the year ended 31st December, 1932.

——	Personal Emoluments.	Other Charges.	Total Expenditure.	Amount dues collected.	Actual expenditure after deducting dues collected.	Grants estimated.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Medical General Administration—						
Island Medical Office ..	4,305 14 6	363 2 9	4,667 17 3	..	4.667 17 3	4,922 0 0
District Medical Officers ..	16,161 6 8	165 16 9	16,327 3 5	..	16,327 3 5	16,177 0 0
Duty Allowance D.M.O., Stony Hill	10 8 4	..	10 8 4	..	10 8 4	25 0 0
Health Officer, Port Royal ..	600 0 0	..	600 0 0	..	600 0 0	600 0 0
House Allowances D.M.O"s, etc..	779 2 8	..	779 2 8	..	779 2 8	860 0 0
Supernumerary Medical Officers ..	807 3 10	..	807 3 10	..	807 3 10	800 0 0
Hookworm Commission ..	5,653 18 5	1,311 3 9	6,965 2 2	..	6,965 2 2	6,725 0 0
Malaria Commission ..	1,609 9 11	1,868 9 4	3,477 19 3	..	3,477 19 3	4,060 0 0
District Nurses Dispensaries Caretakers ..	355 2 3	..	355 2 3	..	355 2 3	445 0 0
Supernumerary Dispensers ..	497 16 0	..	497 16 0	..	497 16 0	498 0 0
Fees for Medical Board ..	..	..	..	..	..	10 0 0
Fees for Medical Council ..	18 18 0	..	18 18 0	..	18 18 0	20 0 0
Bacteriological Branch ..	1,318 12 11	159 7 5	1,478 0 4	127 11 6	1,350 8 10	1,734 0 0
Quarantine ..	547 15 6	423 7 10	971 3 4	111 2 0	860 1 4	1,024 0 0
Central Board of Health ..	8,895 7 0	1,835 10 11	10,730 17 11	..	10,730 17 11	11,037 0 0
Travelling Allowance, D.M.Os., etc	..	2,220 8 10	2,220 8 10	..	2,220 8 10	2.009 0 0
Bureau of Health Education ..	..	225 8 8	225 8 8	..	225 8 8	200 0 0
Training School for San. Inspectors	..	40 6 4	40 6 4	..	40 6 4	75 0 0
Schools Dental Clinic ..	..	501 1 5	501 1 5	7 9 0	493 12 5	500 0 0
Treatment of Yaws ..	..	1,930 13 6	1,930 13 6	..	1,930 13 6	2,000 0 0
Vaccination Fees ..	..	1,495 9 1	1,495 9 1	..	1,495 9 1	925 0 0
Drugs and Poisons Law ..	..	18 13 6	18 13 6	70 15 0	(Cr.) 52 1 6	25 0 0
Midwifery Law ..	..	8 15 0	8 15 0	..	8 15 0	10 0 0
Drugs ..	..	2,930 9 8	2,930 9 8	..	2,930 9 8	3,080 0 0
V. D. Clinic ..	..	1,174 15 3	1,174 15 3	41 5 0	1,133 10 3	1,140 0 0
Expenditure under Pt. IV of the P.H. Law ..	..	678 13 11	678 13 11	..	678 13 11	750 0 0
Railway Fares for Candidates for Appointment ..	..	..	..	..	..	5 0 0
Medical Hospitals and Lepers' Home—						
Public Hospital, Kingston ..	14,669 7 2	19,114 7 11	33,783 15 1	574 5 9	33,209 9 4	34,041 0 0
Jubilee Hospital ..	1,386 13 2	1,496 1 1	2,882 14 3	951 10 0	1,931 4 3	3,134 0 0
Lepers' Home ..	851 15 0	2,049 7 7	2,901 2 7	..	2,901 2 7	2.740 0 0
Seventeen Dispensers ..	3,299 3 4	..	3,299 3 4	..	3,299 3 4	3,310 0 0
Nineteen Matrons ..	2,180 4 4	..	2,180 4 4	..	2,180 4 4	2,213 0 0
Morant Bay Hospital ..	314 5 6	711 19 7	1,026 5 1	4 9 0	1,021 16 1	1,045 0 0
Hordley Hospital ..	449 15 0	1,026 12 3	1,476 7 3	14 4 6	1,462 2 9	1,584 0 0
Port Antonio Hospital ..	563 10 9	1,273 8 4	1,836 19 1	64 7 6	1,772 11 7	1,907 0 0
Buff Bay Hospital ..	565 1 8	1,241 4 7	1,806 6 3	19 1 6	1,787 4 9	1,729 0 0
Annotto Bay Hospital ..	641 3 4	1,501 11 3	2,142 14 7	18 18 0	2,123 16 7	1,961 0 0
Port Maria Hospital ..	641 3 6	1,719 0 0	2,360 3 6	47 6 0	2,312 17 6	2,192 0 0
St. Ann's Bay Hospital ..	521 0 3	1,262 10 2	1,783 10 5	157 14 6	1,625 15 11	1,439 0 0
Cave Valley Hospital ..	205 8 5	427 6 7	632 15 0	6 11 0	626 4 0	561 0 0
Falmouth Hospital ..	325 13 0	618 19 3	944 12 3	2 7 0	942 5 3	1,237 0 0
Ulster Spring ..	158 10 1	355 9 8	513 19 9	15 13 6	498 6 3	565 0 0
Montego Bay Hospital ..	959 4 0	2,347 19 4	3,307 3 4	207 18 10	3,099 4 6	3,235 0 0
Lucea Hospital ..	344 13 11	1,047 6 9	1,392 0 8	31 12 2	1,360 8 6	1,293 0 0
Sav.-la-Mar Hospital ..	761 17 6	1,771 15 9	2,533 13 3	169 7 0	2,364 6 3	2,613 0 0
Black River Hospital ..	534 7 11	1,707 9 6	2,241 17 5	130 11 6	2,111 5 11	2,214 0 0
Mandeville Hospital ..	518 19 10	1,198 14 8	1,717 14 6	133 16 0	1,583 18 6	1,597 0 0
Chapelton Hospital ..	457 11 1	805 19 4	1,263 10 5	..	1,263 10 5	1,372 0 0
Lionel Town Hospital ..	495 11 5	1,108 16 2	1,604 7 7	19 12 6	1,584 15 1	1,666 0 0
Spanish Town Hospital ..	544 9 9	1,712 4 6	2,256 14 3	4 5 0	2,252 9 3	2,135 0 0
Linstead Hospital ..	552 5 6	1,164 6 11	1,716 12 5	19 5 6	1,697 6 11	1,818 0 0
Instruments ..	..	557 9 7	557 9 7	..	557 9 7	425 0 0
Inland Freight ..	..	607 10 7	607 10 7	..	607 10 7	635 0 0
Transport of Lepers ..	..	72 7 5	72 7 5	..	72 7 5	50 0 0
Improvement in Lighting ..	..	114 12 5	114 12 5	..	114 12 5	155 0 0
Farm, Lepers' Home ..	..	4 5 0	4 5 0	..	4 5 0	10 0 0
Recreation and Indulgencies Lepers' Home ..	..	66 7 4	66 7 4	..	66 7 4	65 0 0
Maintenance of children of Inmates Lepers' Home ..	..	107 9 9	107 9 9	..	107 9 9	100 0 0
Travelling Allce. V. S. Jubilee Hospital ..	..	25 0 0	25 0 0	..	25 0 0	25 0 0
Cleaning Compounds ..	..	45 10 6	45 10 6	..	45 10 6	55 0 0
Cleaning Latrines ..	..	170 17 0	170 17 0	..	170 17 0	236 0 0
Repairs to Furniture ..	..	88 9 5	88 9 5	..	88 9 5	90 0 0
	73,502 11 5	64,873 4 1	138,375 15 6	2,950 19 3	135,424 16 3	140,103 0 0
Lunatic Asylum ..	22,015 4 0	20,853 4 5	42,868 8 5	3,028 17 3	39,839 11 2	44,211 10 0

(b) Return showing cost per occupied bed for the year ended 31.12.32.

——	Average No. of beds occupied.	Cost of Staff.	Cost of Dietary.	Total.	Cost per occupied bed per annum.	
					Staff.	Dietary.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Public Hospital ..	377	9,392 13 8	8,145 9 3	17,538 2 11	24 18 3	21 12 1
Jubilee Hospital ..	30	1,215 9 9	773 7 6	1,988 17 3	40 10 4	25 15 7
Lepers' Home ..	125	831 15 0	1,411 6 5	2,243 1 5	6 13 1	11 5 10
Morant Bay ..	28	634 5 6	319 15 5	954 0 11	22 13 1	11 9 1
Hordley	37	769 15 0	507 5 0	1,277 0 0	20 16 1	13 14 2
Port Antonio ..	47	839 4 1	567 3 8	1,406 7 9	17 17 1	12 1 4
Buff Bay ..	47	871 11 8	628 6 6	1,499 18 2	18 10 11	13 9 4
Annotto Bay ..	52	961 3 4	713 6 4	1,674 9 8	18 9 8	13 14 4
Port Maria ..	68	961 3 6	849 16 3	1,810 19 9	14 2 8	12 9 11
St. Ann's Bay ..	32	841 0 3	431 18 2	1,272 18 5	26 5 8	13 9 11
Cave Valley ..	13	325 8 5	142 13 1	467 1 6	25 0 8	10 19 6
Falmouth ..	32	645 13 0	346 14 8	992 7 8	20 3 6	10 16 8
Ulster Spring ..	12	278 10 1	153 5 0	431 15 1	23 4 2	12 15 5
Montego Bay ..	64	1,238 8 2	763 9 4	2,001 17 6	19 7 0	11 18 7
Lucea	30	618 13 11	443 11 1	1,062 5 0	20 12 6	14 15 8
Sav.-la-Mar ..	63	1,081 17 6	704 2 9	1,786 0 3	17 3 5	11 3 6
Black River ..	74	832 17 11	846 16 3	1,679 14 2	11 5 1	11 8 9
Mandeville ..	36	838 19 10	565 14 1	1,404 13 11	23 6 1	15 14 3
Chapelton ..	28	777 11 1	376 13 7	1,154 4 8	27 15 5	13 9 0
Lionel-Town ..	49	807 18 1	612 17 5	1,420 15 6	16 9 9	12 10 2
Spanish Town ..	61	864 9 9	744 6 8	1,608 16 5	14 3 5	12 14 1
Linstead ..	46	862 5 8	631 10 4	1,493 16 0	18 9 8	13 14 6
	1,351	26,490 15 2	20,678 8 9	47,169 3 11	..	..
Lunatic Asylum ..	1,817	22,015 4 0	15,517 17 9	37,533 1 9	12 2 4	8 10 9½

III.—Return showing the Value of Drugs, etc., supplied to the various Institutions from the Island Medical Stores from 1.1.32 to 31.12.32.

	£ s. d.
Value of Drugs and Sundries issued to the Public General Hospitals, Lepers' Home and Medical Districts	7,148 6 5
“ Stimulants issued to Public General Hospitals	121 13 1
“ Drugs, etc., issued to Kingston Public Hospital	5,194 13 6
“ Stimulants, issued to Kingston Public Hospital	227 9 10
“ Drugs, etc., issued to Jubilee Hospital	65 6 8
“ Stimulants issued to Jubilee Hospital	1 9 9
“ Drugs, etc., issued to Lunatic Asylum	301 10 6
“ Drugs, etc., issued to Prisons and Reformatories	356 6 10
“ Drugs, etc., issued to Department of Agriculture	12 10 4
“ Drugs, etc., issued to Quarantine Board	1 0 8
“ Drugs, etc., issued to Parochial Boards	905 6 11
“ Stimulants issued to Kingston & St. Andrew Corpn.	2 1 6
“ Drugs, etc., issued to Constabulary Department	46 12 3
“ Drugs and Sundries sold	338 16 0
“ Lymph issued to District Medical Officers	644 0 6
“ Lymph sold	10 1 0
“ Drugs, etc., issued to Hookworm Commission	349 7 3
“ Quinine issued to Post Office for packets	840 15 0
“ Drugs issued for fumigation	50 18 8
“ Quinine issued to Schools	19 8 4
“ Quinine issued to Estates	8 15 3
“ Drugs, etc., issued to Jamaica Government Railway	18 6 0
“ Drugs, etc., issued to Tuberculosis Dispensaries	578 3 5
“ Drugs, etc., issued to Malaria Commission	10 11 10
“ Drugs, etc., issued for the control of Epidemic Diseases	139 4 2
“ Drugs, etc., issued to Cayman Islands	147 3 11
“ Drugs, etc., issued to V. D. Clinic, Kingston Public Hospital ..	966 9 6
“ Drugs, etc., issued to Yaws Commission	86 8 11
“ Drugs, etc., issued to Shortwood College	0 11 5
	£18,593 9 5

IV.—Return of cases in the Kingston and St. Andrew Corporation Hospital for Infectious Diseases.

Admissions.	1925.	1926.	1927.	1928.	1929.	1930.	1931.	1932.
Alastrim	312	172	2	..	..	..	..	..
Chicken Pox	31	49	116	23	3	17	31	69
Measles	9	40	1	..	..	4	31	45
Syphilis	10	12	5	3	5	7	11	..
Diphtheria	1	..	..	..	..	..	..	..
Pneumonia	..	..	..	..		..	..	..
Yaws	..	5	1	1	2	7	3	..
Whooping Cough	..	..	..	..	..	..	..	1
Ring Worm	..	..	..	..	..	..	..	..
Scabies	..	..	4	3	..	..	..	..
Insect Bites	..	..	..	..	..	..	..	..
Enteric Fever	..	..	..	..	..	..	..	..
Arsenical dermatitis	..	..	..	..	..	..	..	..
Pulmonary Tuberculosis	1	..	..	..	..	..	..	..
Eczema	..	1	..	..	..	..	..	..
Mumps	..	..	..	..	9	5	..	..
Scarlet Fever	..	..	..	..	4	7	10	..
Leprosy	..	..	..	..	1	—	1	2
Under observation	15	15	1	3	..	..	—	3

There was a small epidemic of Chicken -pox during the first half of the year, and of measles during the second half. One death occurred at Bumper Hall—a child with Measles who developed Acute Broncho-pneumonia.

I. J. Cruchley,
Medical Officer of Health, Kingston.

Co-operative Public Health Work in Jamaica during 1932.

The year 1932 was the fourteenth during which the Government of Jamaica and the International Health Division of the Rockefeller Foundation have co-operated in conducting units of public health work. In spite of the serious financial depression all of the units of cooperative work were continued and, in addition, a Yaws Commission was organized. The reduction in the Colony's custom receipts was not as great as was anticipated and the Legislative Council did not find it necessary to make further reductions in the departmental budgets and the co-operative health work was continued with funds similar in amount to those of 1931. This and the fact that the people and the local boards of health continue to ask for increased health control, especially malaria, tuberculosis, and school hygiene work, show that health promotion and disease control have become recognized as permanent activities of Government. Further evidence of this is the fact that Parochial Boards point with pride to their achievements in health work.

The co-operative work began in 1919 with the Hookworm Commission, the first definite public health work to be organized in the Colony. Growing out of this and as a result of the educational work upon which it was conducted, seven additional units have been organized during the past fourteen years and all were in operation during 1932, viz.: Bureau of Health Education, Hookworm Commission, School Hygiene Work, School for Sanitary Inspectors, Malaria Commission, Tuberculosis Commission, Yaws Commission, and Parochial Health Departments. Also, the Foundation rendered further assistance toward improving the water supplies of Kingston and St. Andrew and other parishes, and aided in a study of the vital statistics system in use in the Colony.

The advancement in public health which has taken place in Jamaica has borne direct results in lowering the sickness and death-rates and it has also acted as an incentive to civic pride. People in all parts of the Island are building better homes and living conditions are improving; this is particularly true of "small settlers," as country people who own their homes are called

The estimated population of the Island for 1931 was 1,050,667 and the death-rate for the year was 18.6 per thousand. It is interesting to note that in 1921 the death-rate was 28.3. During 1932, the health of the people was unusually good; there were no serious outbreaks of infectious disease, and no recurrence of malaria in epidemic form as was expected following the serious outbreaks which attended the unusual high rainfall of 1931.

Immediate results in public health work, expressed in lowered death-rates and freedom from epidemics are encouraging but they are not the only results which should be noted. There are other important results which accrue from health education that are more intangible and cannot be expressed in definite figures but can be noted in the gradual improvement of the living conditions of the people, the development of better physical conditions among children, and an appreciation by the people that family health brings wealth as well as happiness. Such results are becoming evident in Jamaica and are prophetic of what can and should be realized in the future.

During 1932, as in the past, the co-operative health work was conducted under the supervision of the Superintending Medical Officer and the Central Board of Health.

This brief account of the units of coöperative work conducted during 1932 will serve as an introduction to the more detailed reports of the Medical Officers in charge of the different units.

1.—THE BUREAU OF HEALTH EDUCATION.

The Bureau of Health Education has for its object the development of a public health consciousness among the people; it was established in 1926 to meet the demand of teachers, sanitary inspectors, and citizens, for detailed information regarding personal hygiene, and the spread and prevention of disease. As its name implies, the work of the Bureau of Health Education is to conduct educational campaigns throughout the island. Education in public health is of most value when used as an opportunity of putting precepts into practice; because of this the work of the Bureau of Health Education has been largely confined to such public health problems as are at present receiving practical consideration in the Colony.

A monthly bulletin, *Jamaica Public Health,* is published to arouse the interest of the general population in public health and to supply schools with health articles suitable for teaching purposes. More than 250 of the larger schools of the Colony use the bulletin as a text in hygiene in their higher forms. During 1932, Volume 7 of *Jamaica Public Health* was issued, the monthly circulation being 20,000. A special number was devoted to "Food and Diet," while another gave suitable programmes for Empire Health Week. The mailing list of the publication includes health workers and others interested in public welfare in all parts of the world; and requests have been received for permission to translate selections from the bulletin into Spanish, Greek and Chinese.

Special mention must be made of the Empire Health Week of 1932 and its observance throughout the Island. As already mentioned, a special "Empire Health Week" number of the bulletin was issued, this year's subject of study in Jamaica being typhoid fever. This number of the bulletin gave information about the disease and contained a play entitled "The Better Way" which brought out the essential facts regarding the prevention of typhoid fever. All of the 14 parochial boards took a leading part in having Empire Health Week suitably observed; the health play was presented at 97 schools, while 107 other meetings were held.

In addition to the publication of *Jamaica Public Health,* lecture material on the subjects of soil pollution, hookworm disease, typhoid fever, dysentery and the diarrhoeas, tuberculosis, malaria, yaws, and child hygiene are supplied to schools, societies and health workers; and placards suitable for use in schools, at markets, and at other public places are distributed to give information about prevalent diseases. During 1932, special leaflets were issued regarding hookworm disease, malaria, yaws, tuberculosis and typhoid fever. The Bureau of Health Education sent out 32 different publications, the total number of pieces of health literature distributed being nearly 500,000.

In addition, the Division of Pre-natal Work was continued. A series of nine letters are sent on application to prospective mothers; these letters are designed to teach the normal changes which occur during pregnancy and to give information about the danger signals which should be recognized. The names of prospective mothers are sent to the Division by such societies as the Child Welfare Association, and by health officers and nurses. During the course of the year 6,867 letters were mailed to 763 prospective mothers.

In addition to the activities mentioned above, the Bureau of Health Education exercises an advisory supervision over the sanitary campaigns conducted in advance of hookworm treatment. It is also a clearing house for the reports of all cooperative units and conducts their financing. The Director for the Rockefeller Foundation in Jamaica is the Director of the Bureau of Health Education, the Hookworm Commission, the Malaria Commission, the Tuberculosis Commission, the Yaws Commission, the Parochial Health Departments, and the School Hygiene Units.

The clerical staff of the Bureau of Health Education is paid by the Rockefeller Foundation from a budget of £550, which also provides for office expenses. The Foundation also pays the salary and travel of the Director and Assistant Director who also supervise the other units of co-operative health work. Government furnishes the Bureau with offices, printing, stationery, and free mail franking privileges. These items amounted to about £2,200 during 1932; and in addition there was a vote of £200 for supplies and educational material.

Staff—Director: Dr. B. E. Washburn.
Asst. Director: Dr. J. M. Hall.
Secretary: Mrs. L. V. Barham.
Clerk: Miss E. Forbes.

II.—THE JAMAICA HOOKWORM COMMISSION.

Since the organization of the Hookworm Commission in May, 1919, campaigns of sanitation or of treatment of the disease have been conducted in thirteen of the fourteen parishes of the Island; the parishes of Clarendon, St. Catherine, St. Andrew, St. Mary, St. Thomas, Portland, St. James, Manchester, and St. Ann, have had both sanitation and treatment campaigns; the parishes of St. James and Trelawny have completed their sanitation and are now having treatment campaigns; while the parishes of Hanover and Westmoreland are now conducting sanitation campaigns in preparation for treatment; only St. Elizabeth remains to be reached by the Hookworm Commission. Up to the end of 1932, a total of 243,585 persons have been examined for hookworm disease and 152,472 or 63% of these were found to be infected; 142,255 patients have been treated by the Commission.

During 1932, the work of the Hookworm Commission was conducted by four units, two engaged in sanitation and two in treatment campaigns in areas where sanitation has been completed.

In Jamaica the responsibility for sanitation is in the hands of the local boards of health (the parochial boards); but in the preparation of areas for hookworm treatment campaigns the work of sanitation is carried out through a co-operative arrangement between the Central Board of Health and the local boards. The Central Board supplies an "Overseer of Works" who is placed in charge of the sanitary inspectors and construction officers of a local board. As a rule, the sanitation staff consists of an Overseer of Works and from four to eight sanitary inspectors who inaugurate latrine building and carry out sanitation in advance of the treatment campaigns. No treatment is undertaken except in areas (of from 5,000 to 10,000 population) which have been sanitated and after the treatment campaigns, which usually last from eighteen months to two years, the trained inspectors are often left as part of the permanent staff of the parish.

In carrying out sanitation the people are visited in their homes, and instructed as to the necessity of having a sanitary latrine, the inspector showing where and how such latrines should be built. The cost of materials and of the actual construction are borne by the houseowner, except in the case of paupers where the cost is shared equally by the central and local authorities. If an owner refuses to build a latrine or if the construction of the latrine is unduly delayed, the bye-law requiring a sanitary latrine at each home is enforced.

The pit latrine is recommended for general use and, where substantially built according to standard designs has given satisfaction in all parts of the Island. The pit should be eight feet deep, with sloping sides to prevent caving in, and covered with a fly-tight latrine box made of sound lumber. In districts having a loamy or sandy soil it is necessary to "stone-pack" the pit, i.e., to line its sides with flat stones. In all cases, the top of the pit must be surrounded by a cement base at least six inches thick and two feet high upon which the latrine building or superstructure is placed. It has been found that such a latrine, built according to a standard design, withstands the heavy tropical rains since the cement base prevents the access of surface water into the pit. In districts near the sea, or in places where the ground-water is near the surface, the latrine box and building are placed on cement or stone bases which extend several feet above the top of the ground; this height prevents splashing and keeps the contents of the pit from overflowing during the wet season. On the other hand, in some districts the soil is so rocky that it is necessary to blast in order to secure deep enough pits. A special squatting type of latrine has been designed for use at labour barracks and at markets.

Sanitation campaigns were conducted during 1932 in the Bethel Town, Lambs River, and Darliston areas of Westmoreland, and in the Askenish, Cascade, and Maryland districts of Hanover parish. The campaign in Westmoreland began in July, 1931, and up to the end of 1932, a population of 22,305 had been reached, living in 4,046 homes. A total of 3,034 homes were sanitated during the year. The sanitation campaign in Hanover parish began in May 1932. This parish being mainly rural made it necessary for unusually intensive educational work to be done before the people could be induced to build latrines at their homes, but after the first few months this difficulty was overcome, and 887 homes out of 1,964 have been sanitated, housing a population of 8,065.

In 1919 when the sanitation work was begun it was found that less than 4 per cent. of the homes in the selected districts had latrines of any type and none of these latrines were sanitary. In Westmoreland, 23 per cent. of the homes visited for the first time were equipped with latrines and 19 of these were sanitary latrines or approved type. This comparison shows the extent to which health education has reached the people, and interested them in the prevention of soil pollution before the advent of the Hookworm Commission in the parish.

The two treatment units conducted campaigns in the parishes of Manchester, St. James, St. Thomas and Trelawny. The work of the treatment campaign is fundamentally educational and an effort is made to reach every home in areas which have been sanitated. Such an area is visited, before the actual treatment work begins, by a member of the staff who does educational work. The facts about hookworm disease and the results of treatment are explained by means of charts and an album of local photographs. The microscope is also used to show hookworm eggs and larvae in order to impress upon the people the necessity of maintaining the latrines in a sanitary condition. Handbills and leaflets are left with each family.

The staff of each treatment unit consists of a medical officer and fourteen assistants. These, upon moving into an area, continue the intensive educational work through general lectures, illustrated with magic lantern slides and moving pictures. Also, conferences are held with agricultural and other societies, where emphasis is placed upon the importance of using and maintaining the latrines as a means of preventing dysentery, hookworm and typhoid fever.

In carrying out treatment, the sanitated area is divided into districts of from 300 to 400 people, and a trained assistant is placed in each. Just as in the sanitation campaign, each house is visited; a census is taken of the inmates and a specimen tin is left for each person. The assistant later pays another visit to the home and collects the specimens and brings them to the central office laboratory where they are examined, the Willis method of examination being used.

Those who are found, upon microscopical examination, to be infected with hookworms are visited in their district by the medical director and each is prescribed for individually. Treatment is then carried out by the assistant, the patients being treated in groups at convenient gathering places or in their homes, the medicine always being taken in the presence of the nurse. A first treatment of oil of chenopodium is given, and a week later a second treatment of thymol. The patient is then re-examined to find out if a cure has been effected. Those who have not been cured by this routine are given additional treatment until they are shown by microscopical examinations to be free of infection. During 1932, a number of treatments were carried out using hexylresorcinol as the drug. This drug was not found to be as effective as thymol and chenopodium, however, and because of this was not adopted for routine treatment. But since it does not produce toxic effects, it is useful for treating school children and others where the drugs cannot be administered under the supervision of the staff.

During 1932, Unit No. 1 of the Commission completed the campaign in the districts about Christiana, in Manchester parish, and on the first of September moved to Adelphi in St. James. During the year, 9,643 people were reached in this parish and 9,639 of these were examined for hookworm disease, while 5,907 or 61 per cent. were found to be infected. A total of 17,579 treatments were given, 6,200 of these being first treatments; 6,402 cures were effected, some of these being patients who had begun treatment during 1931.

The work in the Adelphi area in St. James, was conducted from September 1st to the end of the year. This area is in the western portion of the parish, extending from the sea on the north and the parish of Trelawny on the east, to Montego Bay on the west, and the mountainous districts of the parish on the south. By the end of the year a census was taken of 4,487 people, of whom 4,455 were examined for hookworm disease; and 2,356 or 53 per cent. were found upon examination to be infected. A total of 4,413 treatments were given to 1,756 patients, of whom 1,446 were cured by the end of the year.

Unit No. 2 of the Hookworm Commission, during 1932, conducted treatment campaigns in areas in the eastern and western thirds of the parish of St. Thomas, and an educational campaign in the area comprising the southern section of the parish of Trelawny.

Work in St. Thomas was in the Bath area, where it had been started during 1931, up to the time of the area's completion in September, 1932. During the year 9,162 people of this area were reached, and all but 11 were examined for hookworm disease. Of those examined 6,799 were found to be infected and 6,047 were treated and 5,850 were cured. The total number of treatments given was 17,394. The treatment campaign in the western third of St. Thomas was conducted in the Llandovery area which consists of Blue Mountain Ranges and the Yallahs River Valley. The area was divided into 11 districts, the total population being 7,102, of whom 7,096 were examined and 2,848 found to be infected. A total of 5,446 treatments were given to 2,538 patients of whom 2,488 were cured.

Educational work was begun in the Ulster Spring area of Trelawny parish in November, 1932. The office of the Unit will be moved to Albert Town early in January, 1933, where the treatment campaign will begin.

In addition to the routine work, the medical officer in charge of Unit No. 2 carried out some interesting studies on the effectiveness of different drugs in cases of hookworm infection alone, as compared with cases infected with hookworms and ascaris or other parasites. Hexylresorcinol was one of the drugs used in these studies.

The Central Board of Health provides the salary and travel of two overseers of works of the sanitation units of the Hookworm Commission; and the total cost of two treatment units, including staff, drugs, supplies, printing, stationery and equipment, are met by government. The estimates for these items for 1932, amounted to £6,948. In connection with the sanitation work from four to eight Inspectors are provided for each unit by the local boards of health, the average salary of each inspector being above £10 per month In addition to the sanitation and treatment staffs of the Hookworm Commission, there are 125 sanitary inspectors, 48 of whom hold certificates from the Royal Sanitary Institute, employed by local boards o health. These boards also employ 39 inspectors, of whom five have certificates for part-time service. The total number of inspectors employed in the health work of the island is above 200.

Following the sanitation and treatment campaigns in a parish, it is the rule for the local board to increase its sanitation staff and extend the areas by having the sanitary inspectors and their Health Officer conduct campaigns in remaining districts of the parish. Great success has been made in this undertaking in the parishes of St. Catherine, St. Mary, St. Ann, and St. Thomas, and work of this kind is being carried out in Trelawny and St. James.

Staff—Director: Dr. B. E. Washburn.
Medical Officers in Charge:—
Dr. L. M. Watson
Dr. T. B. Sinclair
Dr. L. E. Arnold.

	Unit No. I.	Unit No. II.
Chief Clerk ..	E. S. Edwards	F. Gordon Somers
Asst. Clerk ..	O. A. Harris	A. Lindo
Typist & Clerk	S. McFarlane G. L. Livingstone	R. J. Moody
Chief Microscopist ..	R. S. Heslop	O. L. Atterbury
Asst. Microscopist ..	O. L. Levy	S. G. Allen

	Unit No. I.	Unit No. II.
Field Nurses:	F. J. Fletcher	P. M. East
	G. V. Ramsay	R. S. Oliver
	G. E. Richards	C. J. Hales
	E. R. Banks	S. A. Dougherty
	T. W. Patterson	V. A. McKenzie
	C. N. Gentles	H. W. Jones
	A. S. Gabay	P. A. Hyde
	H. M. Grey	A. J. Harding.

III.—The School Hygiene Unit.

School Hygiene Work was conducted in eight parishes during 1932. The work consisted of the examination of selected pupils by the health officers and the correction of physical defects, such as decayed teeth, the removal of diseased tonsils and adenoids, and the treatment of pupils infected with hookworms. And in the areas where malaria is endemic special attention was given to the schools with the result that there has been an increase in attendance, in some cases by as much as 300 per cent. Health education has come to play an important part in the curriculum of the schools, and teachers are making more use than ever before of the literature supplied by the Bureau of Health Education, of *Jamaica Public Health* in particular.

Dental defects are by far the most common handicap to school children in Jamaica and the treatment of these is the feature of school hygiene work that creates more interest and receives the best co-operation from teachers, parents, and pupils. This, like the other units of cooperative health work, is conducted from an educational standpoint. The school dentist, provided with a portable outfit, visits the schools in turn and conducts clinics. This is of added educational value and tends to overcome among the pupils the fear of dental treatment held by so many people in rural Jamaica. At a school clinic the mouth of each child is inspected, and, whenever necessary, the teeth are cleaned even if no defects are present. Decayed teeth are either filled or extracted and each pupil's mouth is put in good shape. By this method the child is impressed with the necessity of keeping the teeth clean and sound. There are also lectures and demonstrations in oral hygiene and school health to which parents and others are invited. Teaching oral hygiene is the object of the dental clinic. And the demonstration that modern dentistry is not as painful as aching teeth has made the pupils eager to obtain treatment; more than this, parents have become interested and increased numbers of adults are losing their fear and visiting dentists for the first tme in their lives.

The eight parishes which provided for School Dental Clinics during 1932 are Kingston, St. Andrew, St. Mary, Clarendon, Trelawny, St. James, Hanover, and Portland. With the exception of Portland, clinics were organized in all of the parishes previous to 1932; the Portland Clinic opened in August. The Clarendon Clinic was suspended at the end of that parish's financial year, March 31, but arrangements are being made for its re-establishment.

During 1932, in the eight co-operating parishes dental clinics were held at 148 schools, where 14,988 pupils were given treatments. The details of the work accomplished in each parish is shown in the following table:—

Parish.	Schools Visited.	Total Hours.	Children Treated.	Total Treatments.
Trelawny ..	26	577	1,642	5,864
St. James ..	28	544	2,223	6,108
Hanover ..	23	582	2,992	4,934
Portland ..	9	258	670	2,095
Clarendon ..	7	107	371	807
Kingston ..	14	451	2,439	5,736
St. Andrew	16	360	1,743	6,720
St. Mary ..	25	..	2,908	7,095
	148	..	14,988	39,359

The School Hygiene Unit dental clinics were financed during 1932, as follows: the parishes of Kingston, St. Andrew and St. Mary paid the total cost of their clinics. In Clarendon and Trelawny, Government paid half the expenditures and the parish the remainder; while in Hanover, Portland and St. James the Foundation and Government each contributed one-fourth of the budget and the parish one-half. Each clinic was operated on a budget of £400, as follows:—

1.—Salary of Dentist	£300
2.—Travel of Dentist	75
3.—Supplies and Equipment	25
	£400

Staff: Director: Dr. B. E. Washburn.
Dentists: Dr. F. G. Hollar, Kingston
Dr. F. L. Aris, St. Andrew
Dr. W. N. Hibbert, St. Mary
Dr. S. C. Nethersole, Trelawny
Dr. I. H. Aarons, St. James.
Dr. C. S. Dillon, Hanover
Dr. L. A. Gibb, Portland
Dr. P. E. Bragg, Clarendon.

IV.—THE JAMAICA SCHOOL FOR SANITARY INSPECTORS.

The fifth session of the School for Sanitary Inspectors opened on November 15, and will continue until the end of February 1933. There are 28 students of whom 15 are from the staffs of the Central Board of Health and Parochial Boards. These pupils were selected from several hundred candidates and a majority of them hold Cambridge University Certificates or the equivalent.

The School was organized in 1927, and from its beginning has been affiliated with the Royal Sanitary Institute of Great Britain; by adopting the curriculum prescribed by the Institute, Jamaica was made an examination centre, and students who complete the course at the local School are eligible to sit for the examinations of the Institute.

In organizing the School, the Rockefeller Foundation assisted with an appropriation of £100 to buy microscopes, magic lanterns, and other equipment; and a teaching museum has been collected. An appropriation of £150 from Government was used to convert a building at Headquarters House into a schoolroom, and for the purchase of chairs, tables and other equipment. Since the organization there has been a small annual grant from Government to meet current expenses for water and lights, fees to lecturers, transportation of students on visits to bakeries, dairies, slaughter houses, water works, and other places inspected during each session.

The School is directed by the Senior Sanitary Medical Officer of the Central Board of Health and the teaching staff are members of the Government and Parochial Departments. During the present session the staff is composed of officers from the following departments; Central Board of Health, Public Works Department, Meteorological Department, Department of Agriculture, Kingston and St. Andrew Health and Water Departments, the Kingston Courts and Jamaica College.

The majority of the staff do not receive pay for their work in connection with the School.

The curriculum consists of the following:—

Elementary physics and chemistry in relation to water, soil, air and ventilation; Meteorology; Elementary Bacteriology, lectures and demonstrations.

Lecturers:—Acting Senior Sanitary Medical Officer; Government Meteorologist, Govt. Bacteriologist—6 days.

Elementary Mathematics; Air and ventilation. How to make reports; The art of Lecturing; Lectures, demonstrations and practical work.

Lecturers:—Acting Senior Sanitary Medical Officer; Director of the Bureau of Health Education, 6 days.

Duties of a Sanitary Inspector; Introduction to Sanitary Laws, Bye-Laws, Court Procedure; Office methods and records. Lectures and practice work.

Lecturers:—Acting Senior Sanitary Medical Officer; Chief Sanitary Inspector of Kingston; Assistant Clerk of the Kingston Courts.—6 days.

Nuisances, Offensive Trades; Legislation; Visits to slaughter houses, sewage farm, garbage disposal farm, tannery, soap factory, etc., Lectures and demonstrations.

Lecturers:—Acting Senior Sanitary Medical Officer; Chief Sanitary Inspector of Kingston—4 days.

Disinfection, disinfestation, rat killing; Legislation; Demonstrations.

Lecturers:—Acting Senior Sanitary Medical Officer; Secretary of Quarantine Board.—4 days.

Communicable diseases; Legislation.

Lecturers:—Health Officers of Kingston and of St. Andrew, Medical Officer of Tuberculosis Survey, Research Directors of Yaws Commission.—4 days.

Food sanitation; Meat Inspection; Milk control; Canned goods inspection; Legislation. Weekly visits to slaughter houses, dairies, coconut oil factory, etc., Practical Work.

Lecturers:—Acting Senior Sanitary Medical Officer; Government Veterinary Surgeon; City Meat Inspector.—6 days.

Rural Hygiene; Hookworm Control; Malaria and Tuberculosis; Legislation. Visits to Hookworm Office, Malaria Field Stations, Tuberculosis Dispensary and X-Ray Laboratory.

Lecturers:—Director of Hookworm Commission; Field Director of Malaria Commission; Medical Officer of Kingston; Medical Officer of Tuberculosis Dispensary.—6 days

Entomology; Lectures and demonstrations.

Lecturer:—Government Entomologist.—2 days.

Water Supply; Legislation. Visits to Water Department, filter plants and distribution system.

Lecturers:—Acting Senior Sanitary Medical Officer; an Engineer of the Water Department.—4 days.

Refuse disposal, scavenging; Legislation; Demonstrations; Visits to City Stables and inspection of garbage collections.

Lecturer:—Chief Sanitary Inspector.—2 days.

Sewage disposal; House drainage; Legislation; Demonstrations.

Lecturers:—Acting Senior Sanitary Medical Officer; Director of Hookworm Commission; an Officer of the Public Works Department.—4 days.

Outdoor demonstrations at Dairy, Ice and Soda Water Factories; Bakeries, Slaughter Houses, Soap Factory and Oil Factory.

Visits to Poor Houses, Tuberculosis Hospital, Lodging Houses, Restaurants, Cafes, etc. Plan reading.

During the session class problems are assigned, one to each pupil for report and discussion, such as the following:—

Outline a programme for latrine construction and maintenance in a rural area.
Outline a programme for the control of hookworm disease in a rural area.
Programme for refuse collection and disposal in a city.
The programme which should be undertaken by a local board for the protection of water supplies in a rural area.
Programme for continuous educational campaign on communicable disease.
Simple programme for improvement of milk supply in a rural area where there has hitherto been no control.
Programme for control of milk in a big city.
Programme for control of meat in a rural area.
Programme for the home care of cases of pulmonary tuberculosis.

The pupils are given practice in the art of public speaking. Also, outlines of short lectures are prepared on the more important health topics. Many subjects are illustrated by means of magic lantern slides, moving pictures, and the epidiascope.

Examinations are written, oral and practical; and each pupil is required to give a ten minutes lecture on a public health subject, together with his report on an assigned problem. The examination papers of the pupils who apply for the Certificate of the Royal Sanitary Institute are sent to England for correction at the Institute.

The regulations with regard to the admission of students to the lectures are those required by the Royal Sanitary Institute.

(a) Every candidate must submit a certificate from a registered Medical Practitioner that he is in a fit state to undertake the duties of a Sanitary Inspector (Existing Sanitary Inspectors are exempted).

(b) Every candidate must produce evidence:
  (i) that he has attained the age of 21.
  (ii) a recent testimonial as to his personal character from a Clergyman, Schoolmaster, Doctor, or person holding an official position.

(c) No candidate shall be admitted to the Course of training unless he has passed the preliminary examination or produced evidence that he has passed an alternative examination (an exception may be made in the case of Sanitary Inspectors of long service).

(d) The preliminary examination shall be written and oral upon the following subjects:
  English, including writing, spelling, composition, and dictation.
  Arithmetic, common weights and measures, vulgar and decimal fractions, percentage and simple interest. Mensuration.

The number of students admitted to each session is about twenty-five and these are selected from the staffs of the fourteen parochial boards of health and from others who wish to take up the work of a sanitary inspector. Each Parochial Board can send one member of its Health Department who has been on the staff for more than one year. The other students are selected from outside persons who make application. In selecting students, preference is given to those between the ages of 25 and 30 years who hold Cambridge University certificates or Third Year Pupil Teachers' Certificates.

There is no charge for tuition at the School but a fee of £4 4s. 0d. is charged those who sit for the examination of the Royal Sanitary Institute. Students from the staffs of the Parochial Boards of Health make their own arrangements with their employees; in some cases the local Board pays the student his salary while he is attending the course. Others pay only half salary, while still others make the student take the course at his own expense. In the case of extra students, the student bears his own living expenses while attending the course.

Parochial Boards of Health sending students are expected to give these employment if they are succesful with the course. The School does not undertake to find employment for the men who receive training, but an effort is made to have the trained men appointed to vacancies when these occur. When sufficient inspectors are trained it is planned to reduce the number of students admitted to the School or to omit holding the sessions until there are openings for sanitary inspectors.

In the progress which has been made in public health work in Jamaica the School for Sanitary Inspectors has played an important part. This is particularly true as regards the education of the people in disease prevention. The sanitary inspector is the one member of the health department who goes into the homes of the people and has the greatest opportunity for teaching them the underlying principles of keeping well. The School has stressed the point that a sanitary inspector is a teacher rather than a policeman and education of the people has had an important place in the work which has resulted in a reduction in the death and sickness rates in Jamaica during the past decade.

At the time the School was organized there was only one inspector in the Island who held a certificate from the Royal Sanitary Institute, and the great majority of sanitary inspectors employed by the local Boards of Health were part-time employees and looked after the sanitation work in addition to other jobs such as road overseers, market clerks, and inspectors of poor. The average pay of these men was very low, sometimes as low as ten shillings per week. Up to date, four sessions of the School have been completed. During the four sessions a total of 81 inspectors were given training and of these 47 have passed the examinations and secured certificates from the Royal Sanitary Institute. At the present time the Central Board of Health and all of the local Boards require applicants for positions in their Health Departments to be in possession of certificates from either the School for Sanitary Inspectors or the Royal Sanitary Institute. The present average salary of sanitary inspectors is from 300 to 400 per cent. higher than it was five years ago, showing that better trained men are taking up health work, and also, that these men are accomplishing results which impress the local Boards of Health with their usefulness.

Staff: Director, Dr. J. M. Hall, Acting Senior Sanitary Medical Officer.
Lecturers—
Dr. I. J. Cruchley, Health Officer, Kingston.
Dr. E. E. Murray, Health Officer, St. Andrew.
Dr. K. L. Evans, Government Bacteriologist.
Dr. G. O. Rushie Grey, Acting Government Veterinary Surgeon.
Dr. F. W. Aris, Medical Officer, Malaria Commission.
Dr. B. E. Washburn, Director Hookworm Commission.
Dr. C. W. Wells, Director Kingston Tuberculosis Survey.
Dr. E. J. Isaacs, Director Kingston Tuberculosis Dispensary.
Dr. T. B. Turner, Research Director, Yaws Commission.
Mr. E. Glen Campbell, Chief Sanitary Inspector, Kingston.
Mr. C. M. Codling, Chief Sanitary Inspector, St. Andrew.
Mr. J. A. Baley, Inspector of Bakeries, Kingston.
Mr. S. T. Ellington, Deputy Clerk of Courts, Kingston.
Mr. H. E. Mendes, Meteorological Department.
Mr. C. Don, Secretary Quarantine Board.
Mr. H. Vendryes, Kingston Water Department.

V.—THE MALARIA COMMISSION.

The Jamaica Malaria Commission was organized in 1929, to carry out control measures suggested by the findings of the Malaria Survey conducted during 1928 and the early part of 1929. It was found by the Survey that malaria is only rarely encountered as an endemic disease at elevations above 500 feet and that, except in irrigated areas, the disease shows a decided increase during years of high rainfall. The south side of the Island showed foci of high malaria incidence in the parishes of St. Thomas, St. Catherine, Clarendon, and St. Elizabeth, and on the north side of St. James and St. Mary. A broad zone of lower malaria prevalence was found in the parishes of Westmoreland and Hanover at the western end of the Island and similar small cirsumscribed areas of low incidence exist on the north coast, mainly in Portland parish.

From the findings of the Survey the areas in which malaria is prevalent have been divided into four groups which, in the order of their importance as to (a) high malarial endemicity, (b) size of population, and (c) the economic value of the industries within their bounds, are as follows:—

(1) Annotto Bay and Oracabessa in St. Mary; Montego Bay in St. James; Sav.-la-Mar in Westmoreland; Black River in St. Elizabeth; Vere in Clarendon; Caymanas in St. Catherine; and Golden Grove in St. Thomas.

(2) Port Morant, Buff Bay, Hope Bay, St. Margaret's Bay, Port Maria.

(3) Windsor Castle (Portland), Johns Hall, Gayle, Bull Bay, Epsom, Enfield, Orange Bay, Little London.

(4) Broadgate, Devon Pen, Ocho Rios, Drapers, (Portland); Cave Valley, Green Island, Ferris Bridge, (Westmoreland); Bog Walk, Hoolbury, (St. Ann); and the Hampden-Dunfries area (Trelawny).

Breeding places of mosquitoes were located and carefully mapped during the Survey. Four species of anophelines were found, namely: *A. albimanus*, *A. grabhami*, *A. crucians*, and *A. vestitipennis*. Observations point to *A. albimanus* as the most important if not the only malaria vector.

Since its organization the Malaria Commission has directed its attention mainly to work in the areas of Group 1, in all of which the disease is endemic; and control measures are now being conducted in all of these, the Sav.-al-Mar area being started during 1932. To these areas has been added Falmouth, in Trelawny, where the disease appeared in epidemic proportion during the summer of 1931. In these areas, with the exception of Falmouth, malaria had been endemic for many years; it is hoped that when control measures have been effectively conducted for a sufficiently long time that it will also cause a decrease in the incidence of the disease in the areas in which it shows only a seasonal prevalence.

The work of the Malaria Commission has been effective in reducing the incidence of fever in the endemic areas. Results are evident; in all the control areas there has been a marked decrease in the number of cases of malaria, there have been marked decreases in the spleen and parasite rates (blood examinations), fewer cases of malaria are now being treated at hospitals and at dispensaries, and the attendance at schools has greatly increased. There was an abnormally heavy rainfall throughout the Island during 1931, the mean rainfall being 91 inches while the average mean rainfall for the past 50 years is 76 inches. This increased the work of the Commission since the control areas lie for the most part in districts having rainfall much above the average for the Island as a whole. The disease appeared in epidemic proportions in Falmouth and in the Red Hills above Kingston; and there were increases in the incidence of the disease in many parts of the Colony. All of these were investigated by the Commission, in addition to its routine work. But in spite of the heavy rains there was no marked increase in the disease in any of the seven areas where control measures were conducted; and these places were selected because they were formerly the worst sites of endemic malaria.

In all the work of the Malaria Commission, control is largely through the treatment of standing water with Paris green dust; i.e., 1 part of Paris green mixed with 99 parts of road dust or powdered lime or 1 part Paris green with 128 parts of sand and crushed limestone. In two areas the procedure of destroying holes in limestone rocks, so that they would not hold collections of rain water, has been highly effective. In the Annotto Bay area, subtile drainage was installed in 1930, followed by excellent results; and drainage through open ditches is being more and more employed in most of the areas.

Control of malaria in other than the larger endemic areas is being carried out by parochial boards with increasing effectiveness. The Malaria Commission acts in an advisory capacity and in this way has assisted in the organization of control measures in a number of the areas classified in Groups 2, 3 and 4.

With this short review of the past activities of the Malaria Commission as an introduction, the following brief account of the work of 1932 can be better understood. The rainfall for the year was much less than during 1931, but was above the average for the past 50 years. Malaria did not occur in epidemic form in any area. For purposes of economy an attempt was made to decrease the cost of control by carrying out three instead of four monthly dustings with Paris green. This was found to be unsatisfactory, however, and the more frequent use of Paris green has had to be resumed.

Caymanas Area showed fewer cases of fever than during 1931, though there was an increase in the number of cases occurring during July. At this time, 105 blood smears were taken and 3 were positive for malaria parasites but two of these cases were persons who had recently moved into the area. During the year, 9 blood smears from persons giving histories of fever were examined and 1 was found infected.

The management of the Caymanas Estates, Ltd., besides paying the cost of the control measures in the area, have taken a keen interest in the work.

Annotto Bay Area showed wonderful results of control measures for 2½ years, but in June, 1932, following the experiment to economise in the amount of Paris green and crushed limestone used it was found that the larvae were not being controlled and that there was an increase in the number of mosquitoes taken at night catches. Four cases of malaria, recently moved into the area, acted as foci and there was a marked increase in cases during the last two weeks of August, gradually decreasing in September as an increased amount of Paris green was again used. Blood and spleen examinations of school children showed more positive cases than in 1931, though there was no history of a marked increase in morbidity among the children. Of 94 blood smears examined, 31 were positive with malignant tertian parasites.

Oracabessa Area showed excellent results from control work, especially the stone-sledging of limestone rocks which held rain water. The mosquito catches for the year averaged less than one mosquito per night catch. Of 200 blood smears taken from pupils at two schools only one per cent. was positive.

Montego Bay Area maintained its good record of 1931; of 150 blood smears taken from school children in November, 1932, only 3 were positive; and of 11 smears from suspected cases sent for examination during the year only one showed infection. Few anopheles mosquitoes were taken at night catches and the larvae collected were all in early stages.

Vere Area is the largest under control, being 9 by 4 miles in extent. The results of control measures during 1932, were much more satisfactory than in past years. Very few cases of fever occurred during the last quarter of the year; in the past this period was marked by outbreaks.

The United Fruit Company, through Dr. I. W. McLean, the Superintendent of its Medical Department, assisted the Malaria Commission materially during 1932 as it has always done in the past. The Company supplemented the use of Paris green with oil and paid the cost of three labourers.

Golden Grove Area had the usual heavy rainfall, but the absence of marked outbreaks of malaria was maintained. The attendance at school is now above 300 per cent. more than it was in 1930, and the spleen index as well as the average size of the spleens of the pupils was less than during last year. The average night-catch of mosquitoes increased during the last quarter of the year.

Black River Area had an increase in the number of positive blood smears from February to August, since which time there has been a steady decrease in positive smears, none being noted during the last quarter of the year. Examination of the pupils in the Black River School in September, showed a higher percentage of positive cases than was found in December of last year; but the attendance at the school had increased. Pupils from two schools outside the control area were examined and at both schools a much higher percentage of infection was found than was met in the Black River school.

Falmouth Area showed a great decrease in cases of malaria in spite of many mosquitoes caught at night-catches. The control of the main swamp near the town is still incomplete owing to inaccessibility. Plans have already been made to open another canal to connect the swamp with the ocean. This should make the water more brackish and assist in the prevention of breeding of *A. albimanus* mosquitoes.

Sav.-la-Mar Area was placed under control in July 1932; at that time 300 anopheles mosquitoes were taken at a night-catch in the centre of the area. This has been reduced to an average of 3 per night-catch at the end of the year. There has been a great decrease in the number of cases of fever since control operations were started.

The Westmoreland Parochial Board and the citizens have given the best of co-operation; oil is being used to supplement Paris green and the main stream passing through the town has been ditched.

Little London Area, six miles from Sav.-la-Mar, has always had a bad reputation on account of malaria. Control is being conducted in connection with the work in Sav.-la-Mar. There were 52 artificial ponds within a mile of the centre of the village, and all were breeding *A. albimanus.* A successful attempt has been made to drain the ponds—10 are now dry and fully two-thirds of them should be drained by February, 1933. The fever incidence has steadily lessened since control was begun. The co-operation of the inhabitants is excellent.

Portland Parish conducted effective malaria control during 1932, under the direction of Dr. F. H. N. Cruchley the Health Officer, the results being marked following ditching and the use of Paris green in areas at Hope Bay, Caenwood, and Buff Bay.

The Malaria Commission during 1932, was financed by a Government Vote of £4,000 and an appropriation of £175 from the Foundation.

Staff: Director, Dr. B. E. Washburn.
Medical Officer, Dr. F. W. Aris.
Technician, Miss G. Edwards.
Assistant Technicians, Miss E. Wilson, Miss D. Blackwood.

Field Inspectors		
	J. S. Francis*	Sav.-la-Mar and Little London
	R. J. Hyman*	Montego Bay
	R. C. Pitter	Annotto Bay
	M. G. Francis R. J. Francis	Vere
	A. Allwood*	Falmouth
	S. B. Bullock*	Golden Grove
	R. A. Johnson	Black River
	E. J. F. Ricketts	Caymanas
	H. W. Jones	Little London
	M. A. L. Reid	Oracabessa.

* Graduates of the School for Sanitary Inspectors.

VI.—The Tuberculosis Commission.

Tuberculosis being the greatest single cause of death in Jamaica, the Government with a view to ascertaining the facts necessary for effective control, in 1927 invited the Rockefeller Foundation to co-operate in a study of the disease as it affects the Island. Dr. Eugene L. Opie, of the University of Pennsylvania and now of Cornell University, was secured to direct the study. He visited Jamaica in February, and again in July, 1928, when he directed the establishment of a dispensary (study clinic) at Headquarters House in Kingston, with Dr. E. Joyce Isaacs as medical officer in charge, to obtain direct contact with people suffering from the disease in order that observations could be made of the forms and nature of the infection in individual cases, family groups, contacts, and the influence of conditions of living upon its distribution. Since 1928, Dr. Opie has paid yearly visits to Jamaica in order to keep in close touch with the work of the Tuberculosis Commission.

By means of the dispensary a large number of patients have been made available for observation, and valuable information regarding the nature and spread of tuberculosis in Kingston is being obtained. More than this, the dispensary has been the means of arousing the interest of Government and the people in the control of tuberculosis. A branch dispensary was opened at Halfway Tree in 1929, and during the past two years dispensaries have been started in Port Maria, Spanish Town, Linstead, Montego Bay, Falmouth, Ulster Spring, Port Antonio, Mandeville, and May Pen. At all these places the same general routine is followed and much the same records are kept as at the Kingston Dispensary, so that the findings may be comparable.

In November, 1930, Dr. C. W. Wells of the Foundation Staff arrived in Jamaica, and set up and began the successful operation of an X-ray Laboratory in connection with the Kingston Dispensary. This has proved of great value in the diagnostic work and, also, it has served to increase the interest of medical practitioners in tuberculosis.

In order to broaden the work of the dispensary, and gain a wider view of the tuberculosis situation in the Colony and in a tropical climate, the staff was joined in July, 1931 by Drs. H. H. Smith and E. W. Flahiff, sent by the Foundation to assist in conducting enlarged and more intensive studies through a house to house canvass of certain sections of Kingston and of a number of the smaller towns and rural sections of the Island.

The Kingston Tuberculosis Dispensary.—During 1932, the Tuberculosis Dispensary continued activities which may be grouped under four headings:

(1) The Examinations of Patients presenting themselves at the Dispensary, for diagnostic purposes; also, the examintion of Contact Cases. In the four and a half years that the dispensary has been in operation, the methods employed have been such as to make the people feel that they receive a thorough examination and that a very real interest is taken in them by the staff. From small numbers in the first months of operation, the ever increasing attendance of patients necessitated the removal of the dispensary at the end of 1929 from Headquarters House to larger quarters near the Island Medical Office. It also bceame

necessary to increase the staff and to make a more careful selection of cases, since not only those suffering from pulmonary symptoms come for examination, but individuals complaining of any and every form of ailment. The following procedure is now employed. A history of each individual presenting himself for examination is taken by a nurse; the patient is then seen by a physician who recommends sputum, tuberculin and X-ray examinations if these are considered necessary. In patients found to be suffering from pulmonary tuberculosis two sputum examinations are made, two when tubercle bacilli are demonstrated, and in sputum negative cases, ten specimens from each patient are examined if this many can be obtained. The sputum examinations are recorded in terms of the Gaffky count.

(2). Social Service Work carried on by Visiting Nurses. When a diagnosis of pulmonary tuberculosis is made, and the patient resides in an area accessible for visiting, he and his family become the subject of special study A nurse visits the home and compiles detailed information about the social status and home surroundings of the patient and, above all, of those persons who live in contact with him. All contact cases are urged to attend the dispensary for physical, tuberculin and X-ray examinations; and an increasingly large proportion do so. It has been found necessary for the visits of the nurses to be maintained at frequent intervals, because of the educational value of such visits and because many patients move from place to place. They often move while still owing rent and for this reason do not tell persons living at their old address where they have removed; so unless the nurse keeps in close touch with her cases, adequate follow-up of contacts cannot be maintained.

The social service work is carried on by two nurses paid by the Foundation and two by the Anti-Tuberculosis League; and from the beginning the work has proved of benefit to the patients as well as being an important means of securing information necessary for complete records.

(3). The Compiling of Records. A graph which shows the tubercular history of each member is made for every family entered for the social service work. During 1932, special individual records and copies of family graphs were prepared for statistical analysis. Also, a complete record has been kept of each patient to show the results of examinations and treatment and the general progress made by the individual in his fight against the disease.

(4). Clerical and Technical Work. The records of the visiting nurses are properly transcribed and necessary indexing and filing systems are maintained by the clerical staff, who combine these duties with the technical work of sputum examination. The Hughes' method of examination of sputum has been introduced and is used in the study of selected cases.

The growth of the Kingston Tuberculosis Dispensary can be realised by a comparison of the work done in July, 1929, one year after the dispensary was opened, and in July, 1932, four years after the commencement of operations.

	July, 1929.	July, 1932.
New Patients ..	66	160
Old Patients ..	193	361
Nurses Visits ..	299	544
Tuberculin Tests ..	172	242
Sputum Examinations	163	293

During 1932, a total of 1,854 new cases visited the Dispensary, while visits were made by 3,917 old cases. The nurses paid 6,539 visits to the homes of patients. In the Dispensary Laboratory 3,542 sputum examinations were made. The examinations of 1,854 new cases showed the following: 1,179 did not have tuberculosis, in 29 the diagnosis was not completed, 37 had suspected tuberculosis, 268 showed positive sputum, 154 had the disease but with negative sputum, 180 had varying degrees of latent or arrested infection, while 7 had tuberculosis of other organs.

The Kingston X-Ray Laboratory and Survey.—The X-ray Laboratory, as an adjunct of the Tuberculosis Dispensary, was opened January 20, 1931. The Laboratory was established to assist the Dispensary in the diagnosis of tuberculosis and to confirm the type of the disease. From the very beginning, these services have been extended to physicians for the examination of their private patients. And beginning in August, 1931, the facilities of the Laboratory were extended and utilized in making a Tuberculosis Survey of certain areas in Kingston. This Survey, under the direction of Dr. C. W. Wells, assisted by Dr. H. H. Smith, a Sanitary Inspector, a Laboratory Technician, two Nurses, and two office assistants, by the close of 1932, had completed the three areas of Smith Village, Hannah Town, and Facey's Brick Yard, representative of the poorer sections of Kingston. These areas also represent the greatest congestion or population in the city, and were selected so that the information regarding the incidence of tuberculosis found in them might be compared with survey findings in other and more prosperous areas. On December 1, the survey was extended to Franklin Town where housing conditions are better and where the population lives in less crowded conditions.

The method followed in the Survey, is for a nurse and sanitary inspector to visit each home and explain the objects of the survey, leaving a letter addressed to the head of the household. A census is made of the people living in the house and in the yard rooms. Later, a medical officer visits the house and determines the economic status of the family, recording housing conditions and sanitation, and doing further educational work. Every person living in the house is invited to co-operate by submitting to examination by the tuberculin test and X-ray. Those co-operating are brought to the X-ray Laboratory in a station waggon. Upon arrival, the initial tuberculin injection is made and the X-ray pictures taken; and while at the Laboratory the people are shown typical X-ray films of persons who have already been examined from their district. This always creates a good deal of interest, and upon being told that they may return and see their own films, at least 90 per cent. of those who come to the Laboratory for the first time come back for this purpose. When they return two days later to see the films, the results of the tuberculin tests are read and second injections given to those who prove negative to the first test. A summary of the work accomplished by the Survey up to the end of 1932 follows:—

1. *Smith Village and Facey's Brick Yard.*—A total of 697 individuals were examined, representing 254 households, among which were found the following lesions:—

Pulmonary tuberculosis sputum positive	7
Pulmonary tuberculosis sputum negative	5
Latent Apicals	10
Childhood Infiltration	5
Calcified lesions	27
Pleurisies	4
Incomplete diagnosis	1

2. *Hannah Town.*—1,054 individuals were examined, representing 330 households, Among this number were found the following lesions:—

Pulmonary tuberculosis sputum positive	1
Pulmonary tuberculosis sputum negative	10
Latent Apicals	14
Childhood Infiltration	3
Massive Caseous Lymp nodes	2
Calcified Lesions	33
Pleurisies	1
Incomplete Diagnosis	3

3. *Franklin Town.*—A total of 421 individuals received the tuberculin test; 258 being positive have been X-rayed. Among this number there have been found 3 cases of pulmonary tuberculosis, 8 with calcified pulmonary lesions and 11 with diagnosis incomplete.

The total examinations of all the survey areas for the year have been 2,009 individuals compared to 1,621 during 1931.

During the year a total of 4,798 X-ray examinations were made of individuals, 2,187 of whom were referred to the Laboratory by the Dispensary, 502 by private physicians, 2,009 from the Survey areas and 100 special chest examinations on account of the Yaws Commission. In addition, the X-ray Laboratory has been interested during the past year in collecting lungs from individuals dying of pulmonary tuberculosis.

It may be well to add that the Kingston Tuberculosis X-ray Laboratory co-operated during the year with the Mobile Unit by developing 2,000 X-ray films.

The Mobile Unit.—In addition to the work at the Kingston Tuberculosis Dispensary and X-ray Laboratory, a Mobile Unit was organized to study the disease as it exists in the smaller towns and in the rural sections of Jamaica. The Unit is in charge of Dr. E. W. Flahiff, assisted by a nurse and an office clerk. A portable X-ray machine is included in the equipment of the Unit.

The Mobile Unit began work on September 1, 1931, in Falmouth, the capital town of Trelawny, one of the parishes co-operating in a demonstration health department. The activities in Falmouth may be grouped under three headings:

(1). The examination and classification of all cases of tuberculosis known to the health officer and the examination of all contacts of these cases. A list was prepared of all persons who had died of tuberculosis within two years, and as many contacts of these as could be located were examined. In this way information was obtained and family charts and graphs made of most of the tuberculous households.

(2). A dispensary was established in the Court House in Falmouth, and all persons presenting themselves with chest symptoms were given a physical examination and tuberculin test. Others, free of symptoms were given the tuberculin test and on their return 48 hours later all reactors were examined.

(3). In five elementary schools in the parish, four of which were in rural districts, tuberculin tests were given the pupils; from these was obtained some idea of the incidence of infection among school children. There being no electric current in Falmouth suitable for the X-ray machine, the reactors could not be X-rayed and so the exact incidence of the disease could not be ascertained. In the Falmouth Government School, the names of all reactors were listed and the homes of these were visited and all the members of each household were advised to report to the dispensary for examination. But no case of manifest tuberculosis was found among these.

Before leaving Trelawny, a survey was made of housing conditions. The homes selected were from widely scattered areas, in order to include only the class of household in which improvement of the home would most likely be required; housing density, sleeping-room density, sanitation, ventilation, lighting, and cleanliness were the points noted.

On March 4, 1932, the Mobile Unit moved its headquarters to Montego Bay in the parish of St. James. The methods used in Falmouth were continued; but electricity being available, the portable X-ray machine was employed and more detailed and efficient information obtained. This enabled a more intensive study of family groups with more instructive results.

Tuberculin tests were completed in three elementary schools in St. James, two of these being in rural districts. At the Montego Bay Government School 190 of 211 reactors were X-rayed and record made of the 16 lesions found. In each case where the child showed a lesion, the child's home was visited and tuberculin tests given to all members in the household, as far as possible, while those who reacted were given X-ray examination. While no active cases of tuberculosis were located by this method of approach, in several cases the history of a recent death from the disease in the family or household was obtained.

On May 18, 1932, a house to house survey was begun in a district of Montego Bay known as Hart Street. This area was selected from a spot map of the town made to show all cases of tuberculosis known to the health officer, all cases reported by medical practitioners, and deaths from the disease that had occurred since the first of January, 1931. The map showed tuberculosis to be fairly widespread but scattered in distribution, but with a distinctly greater density along Hart Street, an area in one of the poorest sections of the town with the most congested population. Preliminary tuberculin tests were done and X-ray examinations made of those who reacted to this test. Although the total population of the area was only 464 (an average of 19 people per yard and 4.7 per household) the incidence of tuberculosis was found to be high, 14 lesions being found.

During October and November the tuberculin test was given to a number of rural groups in the districts about Adelphi, a small village ten miles from Montego Bay. The Hookworm Commission was conducting a campaign in this area at the time, and it was found advantageous to work in conjunction with this staff, as the people were assembled at convenient points for examination and treatment for hookworm disease. A total of 1,089 persons were given the tuberculin test; of the 639 reactors 612 were transported to Montego Bay for X-ray examinations, of whom 37 showed lesions.

On December 1, 1932, the Mobile Unit moved to Port Antonio in Portland parish and up to the end of the year organized the study of a rural group along lines similar to that made in St. James.

Protective Inoculations.—During 1932, the work for the prevention of tuberculosis at the Mental Disease Hospital was continued by Dr. H. H. Smith, through the courtesy and co-operation of Dr. R. W. Dale-Hewson, the Superintendent. Tuberculin tests were made upon all new patients within two weeks after admission, and before they had an opportunity to acquire a positive reaction from infection contracted within the institution. This study will determine if clinically manifest tuberculosis occurs with greater frequency in those who enter the hospital with a negative tuberculin reaction than in those in whom pre-existing infection is demonstrable by the skin test. Inoculations with tubercle bacilli killed by heat are being used as a means of increasing resistance to grave infection; this "vaccine" (obtained from the Phipps Institute) suitably administered to persons with a negative skin reaction has been found to produce a positive tuberculin reaction. Observations are being made to find out to what extent it increases resistance to tuberculin infection. In order to insure accuracy of diagnosis, the portable X-ray apparatus of the Mobile Unit is used at the Hospital at regular intervals. During the year, 414 newly admitted patients were tested of whom 49 were negative to the tuberculin test; the vaccine was given to 24 of these.

The aims of the tuberculosis work in progress in Jamaica are: (1) to collect information concerning the character of the disease and the incidence of its various manifestations under varying conditions through out the Island; (2) to determine how the disease spreads in a tropical country such as Jamaica and to learn what are the conditions that modify its transmission; (3) while collecting this information to institute all available procedures that with present knowledge give promise of combating the disease so that the survey may be of current benefit to the health service of the Island, and (4) upon the basis of newly acquired information to devise new preventive measures adapted to local conditions.

Since the study of tuberculosis in Jamaica is still in progress, definite conclusions cannot yet be stated but information thus far obtained would indicate that the following observations are likely to be true for the Colony:

Tuberculosis in Jamaica spreads primarily in the cities.

In the native Jamaican the disease usually pursues a rapidly fatal course.

The number of tubercle bacilli eliminated with the sputum of these patients is far greater than in those suffering from the more chronic forms of pulmonary tuberculosis prevalent in northern countries, but the period of elimination is much shorter.

The spread of tuberculosis in Jamaica is promoted by the crowding of yard rooms and tenement yards in Kingston and the larger towns of the Island and by insanitary habits of the poorer people.

Country people who have come to the cities often acquire pulmonary tuberculosis, are no longer able to support themselves in the city, and returning to their families in the country transmit the disease to them.

The acute tuberculosis prevalent in Jamaica is transmitted to others after a brief period of exposure often not exceeding a few months, and consequently several members of a family may die in rapid succession.

Obvious transmission of tuberculosis from one adult to another (e.g., from husband or wife to the consort) is much more frequent than in the north.

In describing the work of the Tuberculosis Commission, mention must be made of the work of the Jamaica Anti-Tuberculosis League which was organized in 1928 at the suggestion of Dr. Opie, Lady Stubbs being the President up to the time of her departure from the Colony. The League has been highly successful in raising funds through the sale of Christmas Seals, donations from interested citizens, and special entertainments given for its benefit. It has co-operated to the fullest extent with the Kingston Dispensary, paying the salaries and travel of two visiting nurses who work at the Dispensary as well as part of the expense of a nurse in Spanish Town. In additon, it provides a fund with which to buy food for indigent patients and has paid the cost of keeping a number (twelve during 1932) of children from tuberculous families at the Rio Cobre Home.

During the four and a half years since its formation, the Tuberculosis Commission, assisted by the League, has been the means of interesting the more intelligent men and women of the Colony in problems connected with the disease and its prevention. This has brought about a number of important developments:

(1). There is better reporting of tuberculosis than ever before. In 1927, only 797 cases of tuberculosis were reported to the Central Board of Health, while during the same year there were 1,295 deaths reported from this cause. In 1931, there were 1,327 cases of the disease notified while the number of deaths was reported as 1,456. The law requiring the notification of cases of tuberculosis is not being fully observed, but there has been a great improvement in reporting.

(2). In 1928, there was not a single dispensary in the Island where people with suspicious symptoms could be examined to find out whether or not they had tuberculosis. At the end of 1932, as already mentioned, such dispensaries were in operation in Kingston, St. Andrew, Portland, St. Mary, St. James, Trelawny, Clarendon, and St. Catherine parishes.

(3). At the time of the organization of the Kingston Dispensary there was not a single hospital bed in the Island for the care of tubercular cases, and no parochial board gave special care to indigent patients. During the past four years, Tuberculosis Hospitals have been built for indigent cases at the poor houses by the parishes of Kingston, St. Andrew, St. Mary, St. James, St. Ann, Manchester and Portland. In most other parishes special wards have been set aside for patients suffering from tuberculosis.

(4). Much interest has been aroused in improving housing conditions in Kingston and the larger towns of the Colony. Such improvements are bringing about better conditions of living which, in turn, will tend to keep the people healthy and free from disease.

(5). Effective educational work is being accomplished. Only three years ago a parochial board refused to allow its health officer to hold a tuberculosis dispensary in its capital town because it was thought dangerous to the public for the patients to walk through the streets to visit the doctor. Such ignorance of the facts relating to the spread of tuberculosis is a thing of the past. People in all parts of the Island and in all conditions of life are interested and know more about the disease than ever before. And they are willing to assist in fighting the plague.

The Tuberculosis work conducted in 1932, was financed by the Foundation, except that drugs, printing, and stationery were supplied by Government; and the Jamaica Anti-Tuberculosis League provided two nurses for the Kingston Dispensary and a fund for the purchase of food for indigent patients.

Staff: Director, Dr. B. E. Washburn.
Kingston Dispensary—
Dr. E. Joyce Isaacs, Medical Officer in Charge.
Dr. H. H. Smith, Acting Medical Officer in Charge.
Dr. R. A. S. Cory, Assistant Medical Officer.
Mrs. E. Richardson, Miss L. M. Forrester, Mrs. E. E. McPherson, Miss B. Harris, Visiting Nurses.
Miss R. deMercado, Miss C. S. Wood, Clerks.
X-ray Laboratory and Kingston Survey—
Dr. C. W. Wells, Medical Officer in Charge.
Dr. H. H. Smith, Assistant Medical Officer.
Dr. C. H. Parkin, Assistant Medical Officer.
Miss G. Reid, Technician.
Miss L. Bitter, Mrs. V. Maxwell, Clerks.
Mr. C. J. Stuart, Mr. D. C. Edwards, Sanitary Inspectors.
Miss R. M. Penman, Miss W. Dunkley, Nurses.
Mobile Unit—
Dr. E. W. Flahiff, Medical Officer in Charge.
Miss G. Morrison, Clerk.
Miss M. Murray, Nurse.

VII.—THE JAMAICA YAWS COMMISSION.

The most recent unit of co-operative public health work to be undertaken is the Yaws Commission, organized to study a disease that has been common in Jamaica almost since its discovery. Records show that yaws was not an uncommon illness in the Island during the period 1650 to 1750. Since 1920, the Government has provided from £2,000 to £8,000 per year for the treatment of the disease, which was carried out by the District Medical Officers. This method of treatment was of undoubted value to the patients but it did not control the disease. In the Annual Report of the Island Medical Department for 1929, it is stated: "Some District Medical Officers report a decrease in the number of cases, but on the whole there appears to be little change and the number of cases actually treated (in 1929) was larger than ever and amounted to 29,047." Because of this the Government invited the Rockefeller Foundation to co-operate in a study of the disease from the public health aspect in order to find out ways of controlling it in the Colony.

Dr. T. B. Turner of the Johns Hopkins University School of Medicine was secured to direct the investigation, and he arrived in Jamaica in January, accompanied by Dr. G. M. Saunders who was chosen to assist in the Survey. The Government seconded Dr. H. M. Johnston to be associated with the work. The Yaws Commission was organized and by the end of January a laboratory and central office had been established in Kingston, while a district about the village of Bath in St. Thomas was selected for the field survey work. A staff was selected and a field office opened at Bath; men who had been trained in the Hookworm Commission and the Government Laboratory were secured for Inspectors and Laboratory Assistants.

The aim of the Yaws Commission is to establish control measures based on treatment and, if possible, on prevention. Before this could be achieved it was necessary to conduct preliminary clinical and epidemiological studies, together with an investigation of the relative merits of certain drugs. The work of 1932, was spent in making these studies.

It was soon found that much of the information concerning yaws, and particularly the manner in which the disease manifests itself in Jamaica, was confusing and unreliable. The disease seems to be delimited to fairly definitely defined areas, there being six or more such endemic areas in the Colony, all of which are located in the districts having a rainfall much above the average of the Island. There is no accurate information about the actual yaws index in the endemic areas, but it is known to be fairly widespread. It is rare in Kingston, Spanish Town, Montego Bay, and the larger towns. Infection is known to take place in children and the disease is recognized as being a serious handicap to children.

As the central feature of a survey of the problem is a study of yaws patients in their natural environment, an area about Bath with a population of about 2,500 was selected. A method of survey was devised by which every home is visited and all infected cases located. At the field office a clinic was established which afforded facilities for the examination of patients, dark-field examinations, collection of blood for serological study, and other minor laboratory procedures. But as there is neither gas nor electric current at Bath it has been necessary to do all but the simpler laboratory procedures in the central laboratory at Kingston. And patients have had to be transported to Kingston for X-ray examination.

The investigations carried out during 1932 may be divided into (1) the collection of clinical and epidemiological data by a detailed study of patients and (2) the investigation of closely related problems. Among these problems may be mentioned the effect of various drugs on early yaws as manifested by the clinical response of lesions, the time required for the disappearance of *T. pertinue* from the lesions, the behaviour of the Wassermann titre during and following treatment; a comparative study of the Wassermann test and the Eagle flocculation test in yaws; a study of the heart and aorta of yaws patients, with X-ray in addition to physical examination; a study of the spinal fluid of yaws patients; X-ray investigations of bone lesions; and the isolation of *T. pertinue* in laboratory animals.

Investigations along the lines indicated above brought out a number of interesting facts. The incidence of infection was found to be high, being 65% of the unselected cases examined; while nearly 80 per cent. of persons over 20 years of age have had yaws. Infection occurred in 76 per cent. of patients before the age of 10 years, and 91 per cent. of the patients contracted the disease before adolescence. These facts would seem to indicate that the disease is practically never venereal in character; and this is in keeping with the fact that few cases of syphilis are present in the area. The disease is less common among the better class of people, though a family free from yaws may live in close proximity to an infected family.

Yaws expresses itself clinically through lesions of the skin, the soles of the feet, and bone lesions. Transmission is usually by direct contact, though other ways may occur. There is a definite family incidence, in most cases several patients are found in each infected household. It is significant that lesions may remain infectious for from 5 to 15 years after the disease is contracted. The majority of cases remain infectious for as long as one year, many for five years, and a few for longer periods.

In the treatment of cases four drugs were tried: neo-arsphenamin, a bismuth preparation, halarsol, and carbarsone (given by mouth). An important observation, not generally recognized, is that the response to treatment is not as satisfactory as was commonly thought; in fact, it is established that yaws is not an easy disease to cure.

During the year 1,500 patients were examined, of whom 917 were found to have yaws. Treatment was given to 490 patients, the other positive ones being old cases which were no longer infectious or in need of drugs. The Wassermann test and the Eagle flocculation test were used routinely, more than 8,000 of each being done during the year. Examination of the spinal fluid was made in 305 patients.

Animal work was conducted at the laboratory in Kingston and strains of yaws and syphilis were established in rabbits for possible future experimental work. The availability of guinea pigs and white mice for the study of experimental infection was also investigated.

The work of the Yaws Commission during 1932, brought out definite facts regarding the clinical course of the disease, the nature and extent of the infectious lesions, and the value and limitations of certain drugs. Also, there was developed a method of survey, based on case histories and serological tests, which can be used to locate infectious cases in districts where control work is conducted. During 1933, it is planned to apply these methods of survey and treatment to other areas where yaws is prevalent.

The expenditures of the Yaws Commission for 1932, were met by the Jamaica Government, which provided the salary and travel of the Government Medical Officer, drugs, printing and stationery. The other items of expense were paid by appropriations from the Rockefeller Foundation.

Staff: Dr. B. E. Washburn, Director.
Dr. T. B. Turner, Clinical Director.
Dr. G. M. Saunders, Associate Clinical Director.
Dr. H. M. Johnston, Government Medical Officer.
Technician, J. E. Reid.
Clerks, M. Lewis and O. Harriott.
Field Inspectors, A. H. Fleming, W. N. Ewart, and F. Desdunes.

VIII.—Parochial Health Departments.

The history of public health and sanitation in all parts of the British Empire is remarkably similar. First, medical departments were organized to provide treatment for the sick. Advances in medicine and surgery soon brought about an increase in the number of hospitals; the discovery of causes of infectious diseases made it necessary to give attention to the control of epidemics; while in more recent years further discoveries have focussed attention upon prevention rather than upon cure. And now progressive governments have assumed the function of introducing disease prevention into the homes of the citizens; this undertaking is proving so successful that already the form of administration of medical departments has had to undergo changes and these departments have had to be enlarged to keep pace with the growing demands of the people. In England, these advances led to the formation in 1919 of a Ministry of Health to centralize the health activities of the Government which had formerly been supplied largely through local boards of health.

In Jamaica the trend of medicine has been much the same as in other British Colonies; from the provision of medical and surgical treatment and the establishment of hospitals there has developed organized work toward the control of infectious diseases and the solution of the conditions which lead to ill-health and poverty among the people.

The movement for organized public health work began in 1919 with the Hookworm Campaigns which served as a demonstration in health education and created a desire among the people for further information about disease prevention and health conservation. This led to the establishment of a Bureau of Health Education which made use of the schools as an important agency for the spread of knowledge regarding public health. Progressive teachers became aware of the relationship existing between physical defects and mental retardation and School Hygiene Work, with dental clinics, was begun in 1924. A more definite effort was then made to reach the people in their homes and teach them to apply the principles which make for the conservation of health. In 1927, the School for Sanitary Inspectors was organized to train inspectors, the officers of the health department who go into the homes of the people and have the greatest opportunity for teaching them how to keep well, so that these sanitary inspectors would become teachers in addition to being sanitary policemen. And the more important diseases have not been neglected: A Malaria Commission conducted a survey in 1928, since which time control measures have been instituted in areas of large population where this disease is endemic. Also, in 1928, a Tuberculosis Commission was organized and the disease which is the greatest single cause of death in Jamaica is now being studied at dispensaries in Kingston and other towns, where patients can come for examination and treatment. The latest undertaking was the formation of a Yaws Commission in 1932.

A natural outcome of this steady advance in the development of public health work in Jamaica was the organization of each parish as a unit or branch through which disease control activities could be carried to the people. Kingston, St. Andrew, and Clarendon early provided full-time health officers. In other parishes the need of such officers was recognized as more and more sanitary inspectors were employed and the people demanded that attention be given to sanitation, the protection of public water supplies, the inspection of food handlers, and the control of infections. A Medical Commission in 1928, made a study of the health needs of the Colony and recommended that each parish should have a full-time health officer, with special training, appointed and paid by the Central Government. The plan was approved by the Legislative Council in 1929, and became effective April 1, 1930; by the beginning of 1931, all but two (St. Ann and Westmoreland) of the fourteen parochial boards had accepted the plan. At the end of 1932, eight (Kingston, St. Andrew, St. Catherine, Clarendon, Manchester, St. Mary, Trelawny, Portland) of the twelve co-operating parishes had been permanently organized under the new plan; the remaining four have full-time health officers holding temporary appointments. These four parishes (St. Thomas, St. James, Hanover, and St. Elizabeth) will be permanently organized when health officers who have had special training are available.

To assist in demonstrating the practicability of parochial health departments, directed by full-time health officers with adequate staffs and equipment, the Rockefeller Foundation co-operated with government and the parochial boards in the organization of such departments in St. Mary, Trelawny, and St. Catherine. The health officers chosen for these departments were given special training on Foundation Fellowships. The demonstration in each parish continues for three to four years, the work being conducted under the direction of the Central Board of Health. The object is to find the most effective method of conducting health work in Jamaican parishes and adapt these to the control of the more important health problems of the Colony. Each staff consists of the full-time health officer, an office clerk, a chief sanitary inspector and from four to ten assistants.

At the present time the routine work of the department in the three co-operating parishes is more or less similar to such work throughout the Colony, due to the fact that these three departments have been able, through the provision of more adequate budgets, to try out and determine what methods are most effective in producing results; in this way they have served as examples to other parishes.

Among the activities in which the health departments are engaged, the control of communicable diseases takes the first place, typhoid being one of the more important problems. Supervision of sanitation and the installation of types of latrines which will control the bowel filth diseases, the care of the sick in hospitals, and the vaccination of contacts are the steps being taken to control typhoid. All cases of contagious diseases are visited by an officer of the department in order to be sure that measures are being carried out to prevent their spread. Each parish has a small laboratory where examinations can be made for intestinal parasites, malaria, and tuberculosis. Treatments are given for hookworm disease and clinics are conducted for the control of tuberculosis. In addition to these activities, each department is concerned with general sanitation, food sanitation and the examination of food vendors, as well as the inspection of water supplies.

The local boards of health have a wide range of legal powers and duties under the Public Health Law, but in the past the lack of trained whole-time personnel have prevented the enforcement, or at least the effective enforcement of regulations which would accelerate progress in disease control. But definite progress is now being made in the three demonstration departments in training the public to realise their legal responsibilities with regard to the prevention of the spread of preventable diseases.

Health education through work in the schools and general lectures and conferences is given special attention, and treatment is provided for pupils suffering from Hookworm Disease and dental defects, these being the more common handicaps to school children in Jamaica.

Correct records are kept of the work done in each parish and monthly reports are made to the local and Central Boards of Health.

The work in these three demonstration parishes has proved highly successful from the beginning and, as already stated, other parishes are adopting the methods which have brought results.

The St. Mary Health Department, the first to be organized, completed its four-year programme of co-operative work at the end of September, 1932. Dr. I. J. Cruchley, was health officer from October, 1928 until January, 1932. He was succeeded by the present health officer, Dr. H. S. Lawrence, who holds a degree in public health from the Liverpool School of Tropical Medicine. In addition to its routine work, the St. Mary Department supervises the control measures of the Malaria Commission in the Oracabessa Area.

The Trelawny Health Department began its fourth and last year of co-operative work in October, 1932. For three years Dr. J. M. Hall was the health officer, being succeeded by Dr. W. J. Branday, upon the latter's return from a year of study at Johns Hopkins University as a Foundation Fellow. The Trelawny Department has done outstanding work in the control of malaria and tuberculosis.

The St. Catherine Health Department is the last of the co-operative departments to be organized, completing its second year at the end of September, 1932. The parish is the largest in area and population in the Island. Dr. G. S. Escoffery, the health officer, in addition to the routine work of his department, has developed child hygiene work with the assistance of Nurse Richards, the first public health nurse to be employed by a parochial department in Jamaica.

The budget of each co-operative parochial health department amounts to £2,000, of which the Foundation contributes 25 per cent. during the first year, 16⅔ per cent. the second year, and 8⅓ per cent. the third and fourth years, the remainder being supplied by the parish. Government pays the salary and travel of the health officer, while the parish provides the remainder. During 1932, the Foundation paid 16⅔ per cent. of the budget in St. Catherine and 8⅓ per cent. of the budgets in Trelawny and St. Mary.

IX.—The Training of Health Officers.

For a number of years the Government of Jamaica has been assisted by the Rockefeller Foundation in the training of medical men in public health work. Fellowships which provide study and practical field experience are assigned to the Island Medical Department, and the Superintending Medical Officer selects men for this special training. During 1932, Dr. W. J. Branday who had been a medical officer in the Hookworm Commission, completed a year at the School of Hygiene and Public Health of Johns Hopkins University and returned to the Island in September. In October, he took up work as whole-time health officer of Trelawny parish.

Dr. L. M. Watson, Medical Officer in Charge of Unit No. 1 of the Hookworm Commission left in September for study at Harvard University.

In August, Mr. H. Vendryes of the Water Department of the Kingston and St. Andrew Corporation, spent a month in Costa Rica and Panama studying methods of water purification.

Dr. Amadeo Vicente-Mastellari of Panama, spent November and December in Jamaica studying the work of the Tuberculosis Commission, following a year of study in the United States. Dr. Mastellari, upon returning to Panama, will have charge of Tuberculosis Control in that country.

X.—Vital Statistics.

In Jamaica, the collection and compilation of Vital Statistics is conducted as a branch of the Registrar General's Department. With the provision of organized health work in the parishes, the necessity of having available correct information regarding the cause of death has become recognized. During the past decade much progress has been made in the improvement of the Vital Statistics through the interest and efforts of the Registrar General. This is particularly true of the medical certification of deaths; and especially so in the three parishes having demonstration health departments. But the present system of registration was adopted about 1880, and changes are necessary before the best results, from the modern viewpoint, can be obtained.

Upon the invitation of the Superintending Medical Officer, the Foundation sent Dr. Hugo Muench, of its Division of Vital Statistics, to make a study of the registration of Vital Statistics in Jamaica. Dr. Muench spent more than two months in the Colony and, with the Registrar General and his staff and the Health Officer of St. Catherine, made a study of the methods used and suggested changes which will make the vital statistics more accurate and of greater use to the health departments. A full report was made of the study, and this will be presented for the consideration of Government.

XI.—Conclusion.

This summary report is intended to give a review of the growth and development of public health work in Jamaica and tell of accomplishments during 1932. Although organized work began in 1919, the more important developments took place during the past seven years, while Dr. B. M. Wilson was Superintending Medical Officer. Due to his marked administrative ability preventive medicine has been placed upon a permanent basis in the Colony; and the success which has marked the Co-operative work between Government and the International Health Division of the Rockefeller Foundation, is in a large measure due to the interest and able supervision given by Dr. Wilson under whose direction the work was conducted. It is a matter of great regret that Dr. Wilson found it necessary to retire from the Colonial Medical Service in November on account of ill-health.

During 1932, the Cooperative Health Work had a number of prominent visitors from England and the United States. Also, several officials of the Rockefeller Foundation visited Jamaica to see the field work of the various units. Among these was Dr. F. F. Russell, Director General of the International Health Division, who accompanied Dr. E. L. Opie, when the latter paid his annual visit to the Tuberculosis Commission in May. Dr. Russell had not been to Jamaica since 1925 and expressed surprise at the great advances which have taken place in the Island, especially those in the field of preventive medicine. Also, Dr. H. H. Howard, Associate Director of the International Health Division, paid his regular annual visit of inspection in January. And Professor E. O. Jordon of the University of Chicago, a member of the Foundation's Board of Scientific Directors, spent eight weeks in the Island, and early in the year visited the health work in all the parishes.

A feature of the great progress which has taken place in Jamaica during the past seven years, is the marked improvement in living conditions and in public health. The provision of better houses and improved living conditions and increased pride in home ownership on the part of the people, especially the small settlers, cannot be regarded otherwise than with great satisfaction. Aside from resulting in a decrease in the Island's death rate and infant mortality rate, as well as in a lessened amount of sickness, the public health work being done in Jamaica has other economic values not usually recognized.

Visitors to Jamaica cannot help but be attracted by cleanliness and sanitation; and many who in the past paid short visits to the Colony now return for longer stays since they carry away with them the memory of clean towns and homes and of a people who take pride in improved sanitation and up-to-date methods of living.

An evidence of the successful growth of public health work in Jamaica is the fact that the expenditures of the Central and local Boards of Health have increased from year to year, as is shown in the following table:

Year.	Amount.
1919-20	£37,450
1920-21	51,538 (Alastrim Epidemic)
1921-22	45,140 (Alastrim Epidemic)
1922-23	45,121
1923-24	56,653
1924-25	60,597
1925-26	69,107
1926-27	75,697
1927-28	83,941
1928-29	92,501
1929-30	105,085
1930-31	105,944

An account of the development of public health in the Island shows that Jamaica is making progress in the work of controlling disease. The Colony has learned that public health is purchaseable and that full realization of the benefits to be derived from health conservation can be found only in providing and maintaining well equipped health departments. A review of the past shows that we are moving in the right direction.